

Manufacturers RECORD

An Exponent of Americanism

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Things We Should Ever Remember

We should remember that we are not engaged in war as wars have been known in the past.

This war bears no resemblance to the Revolutionary War, to the War of 1812, to the Civil War or the Spanish War. It is not a war in the sense that they were wars. They were wars for great principles, waged by civilized human beings.

In Europe we are fighting not a war as wars have been known. We are as a community trying to stop a gang of assassins, of cutthroats, of rapists and looters from carrying into effect the destruction which for half a century they had been planning.

We are not fighting soldiers as soldiers; we are trying to overcome a lot of assassins and rapists who started out to destroy civilization and conquer our community and all the world in order to murder, to enslave and to loot all other people.

Never let us for one moment think of Germany and of its armies from any other point of view, because unless we see the situation in the true light we shall not fully understand that peace with an uncrushed Germany would be peace with a gang of murderers and outragers and robbers, and would be a disgrace to all civilization.

Does a community which has been attacked by a gang of murderers and looters and rapists accept their offer of peace terms in order not to punish the criminals and not to make the families of these criminals suffer?

Does a community when it has caught the red-handed murderer or the rapist say, "We must not punish him because his wife and children would suffer?"

Does a community when its policemen and its citizens summoned to their help have been done to death by a gang of cutthroats and robbers accept from these criminals an offer of peace provided they return a part of the loot, leaving them free to wreak their vengeance upon the same community in the future, and count the mercy shown merely as pusillanimous, neurotic sentimentalism or as plain cowardice, lacking moral courage to punish the evil-doer?

Criminals know that they will be punished if caught; they know that any pity which would forbid their punishment is contrary to the laws of God and the experience of humanity. They enter upon their scheme of murder and robbery with their eyes open, taking the chance of death for the hope of loot.

Germany is in exactly this situation. Its people know that they are murderers, highwaymen, robbers and outragers who took the chance, hoping and fully expecting to bring home the spoils. They entered joyously, hilariously upon the campaign. They cared not how much suffering other people had to endure; they cared not how many millions they murdered. These things moved them not. All they were after was robbery, individual and national, and no crime was great enough to shock them if it brought them nearer to their goal of robbery and world dominion. Shall they not be punished in order that civilization may be preserved through the centuries to come?

IN BUYING LIBERTY BONDS YOU ARE HELPING TO SUPPRESS AND PUNISH THESE CRIMINALS AND HELPING TO SAVE OUR COUNTRY FROM BEING TURNED INTO A "MADE IN GERMANY" HELL OR INTO A "MADE IN HELL" GERMANY. THE TERMS ARE SYNONYMOUS. HAVE YOU BOUGHT LIBERTY BONDS TO THE UTMOST EXTENT OF YOUR POWER?

Bethlehem Steel Company

South Bethlehem, Pennsylvania

PIG IRON: Basic, Bessemer, Foundry, Low Phosphorus, Mayari, Ferro-Manganese, Spiegeleisen.

CASTINGS: Steel and Iron, Brass, Bronze and Manganese.

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NUTS: Hot and Cold Pressed, Cold Punched, and Forged; All Sizes, Shapes and Standards; Blank or Tapped, Chamfered, Trimmed and Reamed, Case Hardened, Castle, Semi-Finished and Finished.

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Forgings and Castings for Large Marine Engines.

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In the Fleisher Textile Plant, which covers an entire city block and is the largest plant in the world for the manufacture of yarn, Wm. Steele & Sons Company, Engineers and Constructors, employed four distinct types of Fenestra.

Fixed sash is installed in the third and fourth floors, where the spinning of yarn is done and the humidity has to be exactly controlled. Fenestra windows of this type are airtight. No cold air can leak in or warm air leak out. Rooms thus enclosed can be kept at a uniform temperature. This is a striking advantage of Fenestra over wood sash, which eventually warps and decays and cannot be kept airtight.

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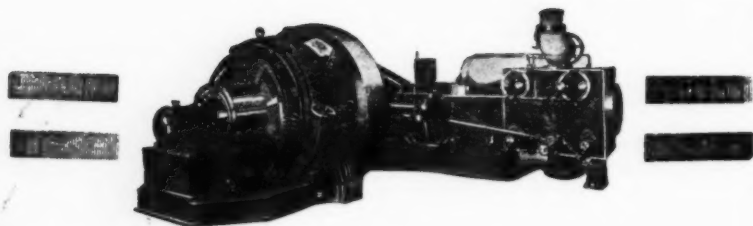
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meets requirements in offices.

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meets factory requirements.

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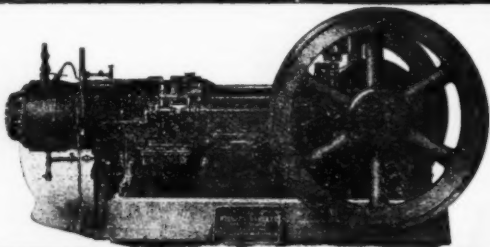
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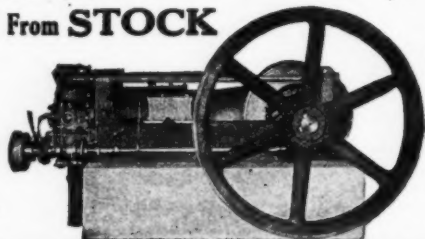
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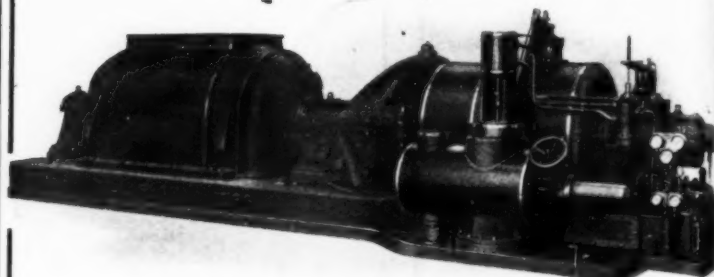


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Units built in sizes from 200 K. W. up



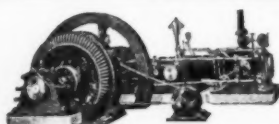
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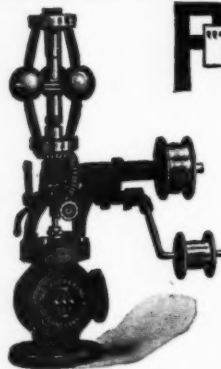
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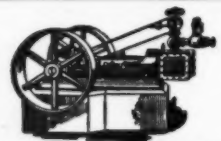
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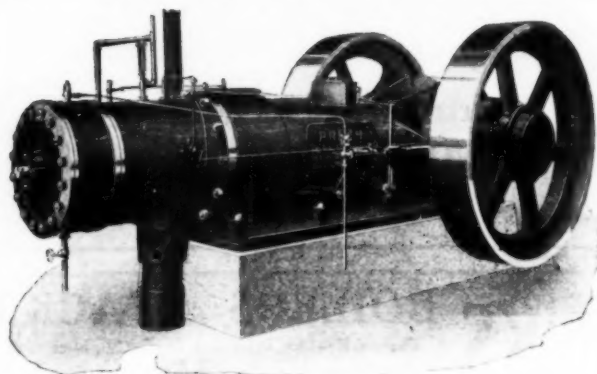


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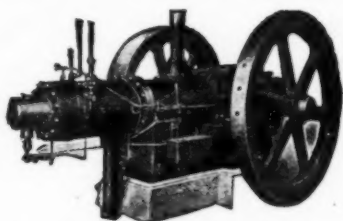
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An inexpensive little "Drop Out" Renewal Link restores a

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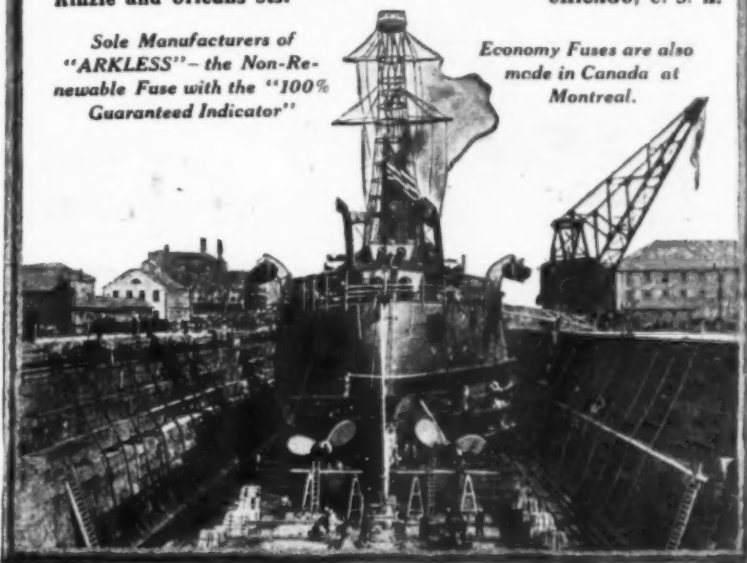
Economy Fuse & Mfg. Co.

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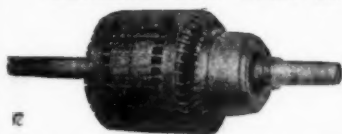
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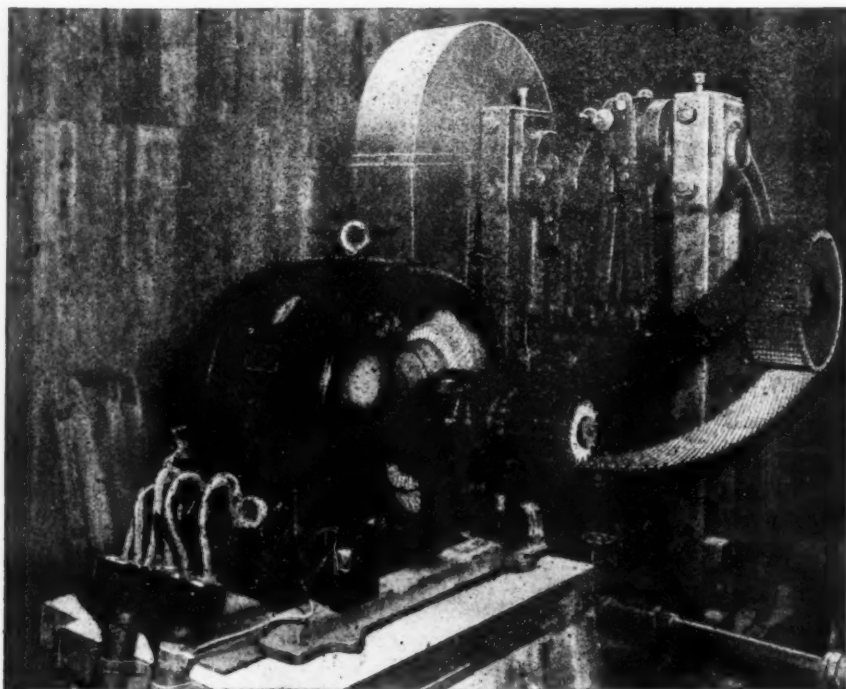
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STEAM SUPERHEATERS

Works:

MECHANICAL STOKERS

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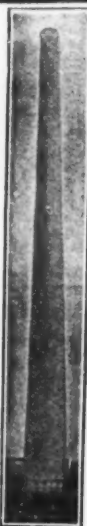
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Ask for our new catalogue, which de-
scribes in detail the many advantages of
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We will gladly send this catalogue on
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*We also make a complete line of
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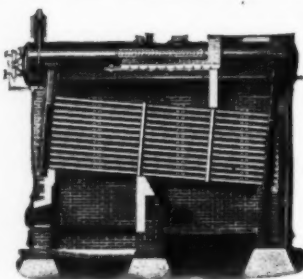
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Pressures 160 to 300 Lbs.
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All steel construction. Drop for-
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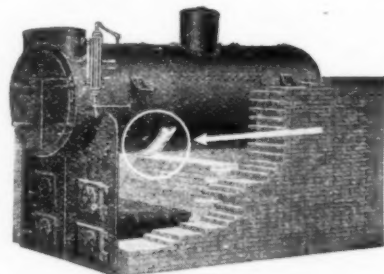
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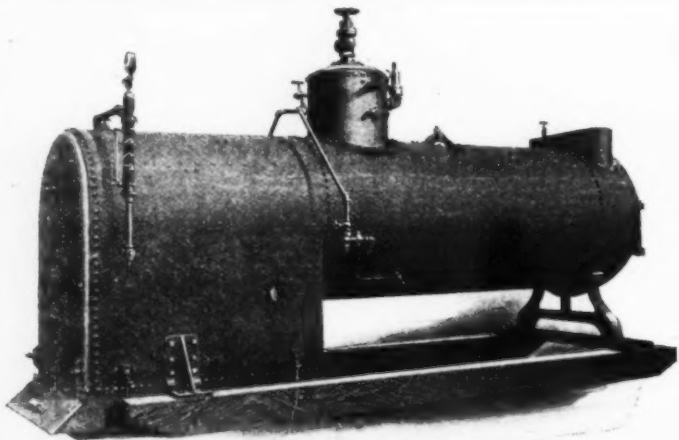
NATIONAL GIRTH SEAM PROTECTOR

This insures the satisfactory
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and saves the expense of
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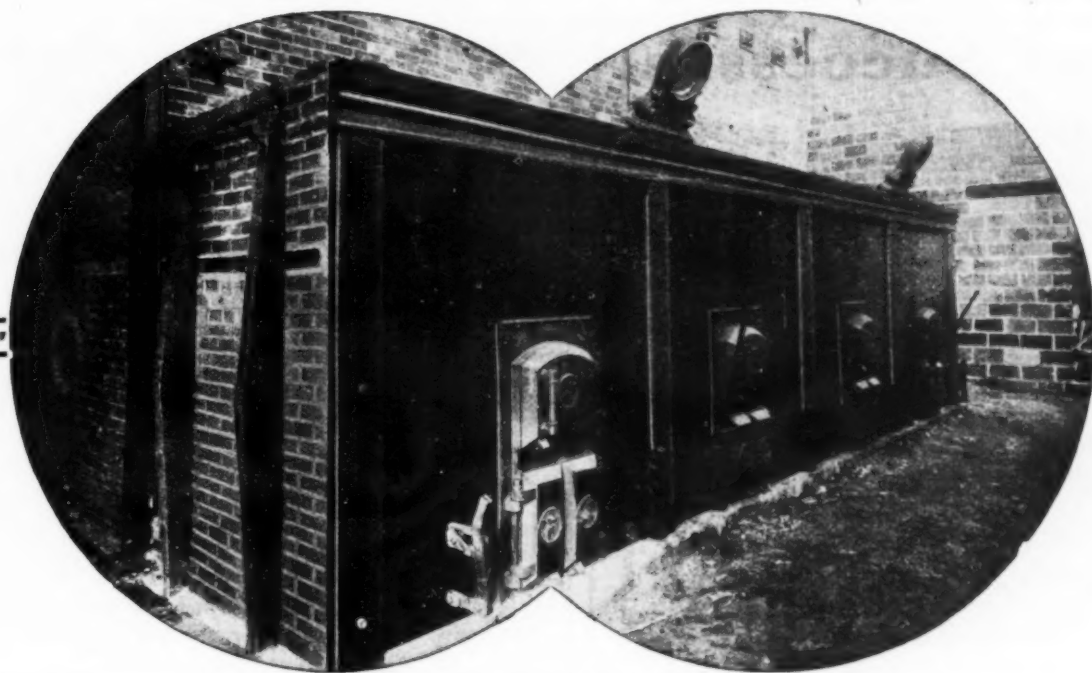
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Several Second-hand Boilers In Good Condition

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Two 258-H.P. Erie City Vertical Water Tube Boilers at the plant of the Tuscarawas Electric Light and Power Co., New Philadelphia, Ohio.

“Force to the Utmost Without Stint or Limit”

That's just about right when it comes to hitting the Huns, but it is dangerous doctrine when applied to boilers.

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Get this thing started by writing first for our Bulletin.

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Years of Successful Service—

have proven the reliability of the

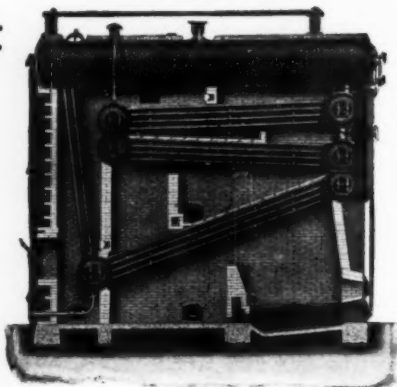
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a steam producer surpassed by none. Safe, sound and efficient. Built by expert workmen and of the very best material. Steam quick and a plenty of it. Find out all about this economical boiler in our Bulletin.

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THIS IS YOUR FIGHT, TOO



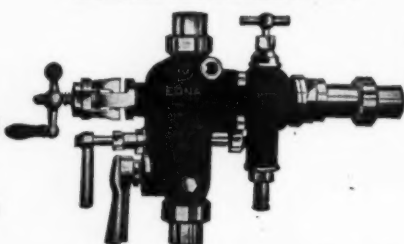
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THOMAS

WIGGLING, SHAKING, DUMPING

GRATE BARS

SAVE

their cost in a short while. The extracts herewith, taken from a few of the many letters we have received, will prove that these bars will save

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if properly applied to any boiler, and, as they keep the fuel bed at the highest working efficiency, will save

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Bottom and End View of Bar Showing Structure.

EVIDENCE

The saving in fuel has been 21%, and with present rate of coal makes a saving of about \$94.50 per month.

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Saving per day with bars, \$3.01. Cost of bars, \$194.45. Number of days' savings to pay for bars, 64½.

U. S. Eng. Office,
Vicksburg, Miss.

120 tons coal saved on \$235 worth of bars in five months.

The Mireau Laundry Co.,
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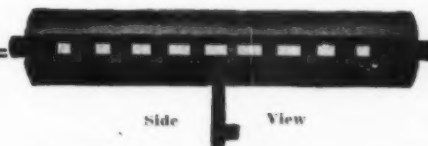
One day's savings:

1 ton coal in firing.
2 tons coal from ash.
56 minutes cleaning fires.
33⅓% increased feed-water valve opening.

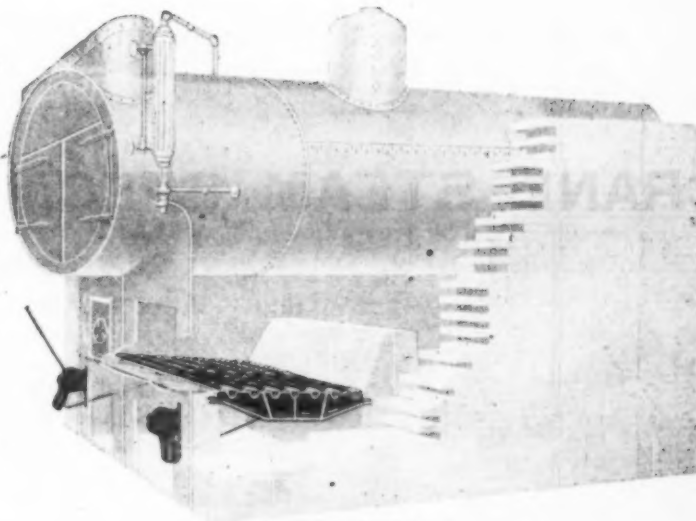
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Boiler efficiency increased 47%.
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Saved in coal at \$1.25 per ton, one year, \$11,230.11.

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Side View



Return Tubular Boilers.

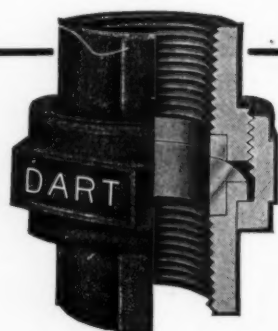
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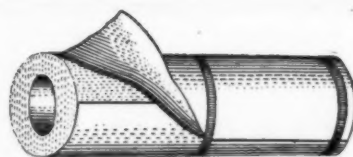
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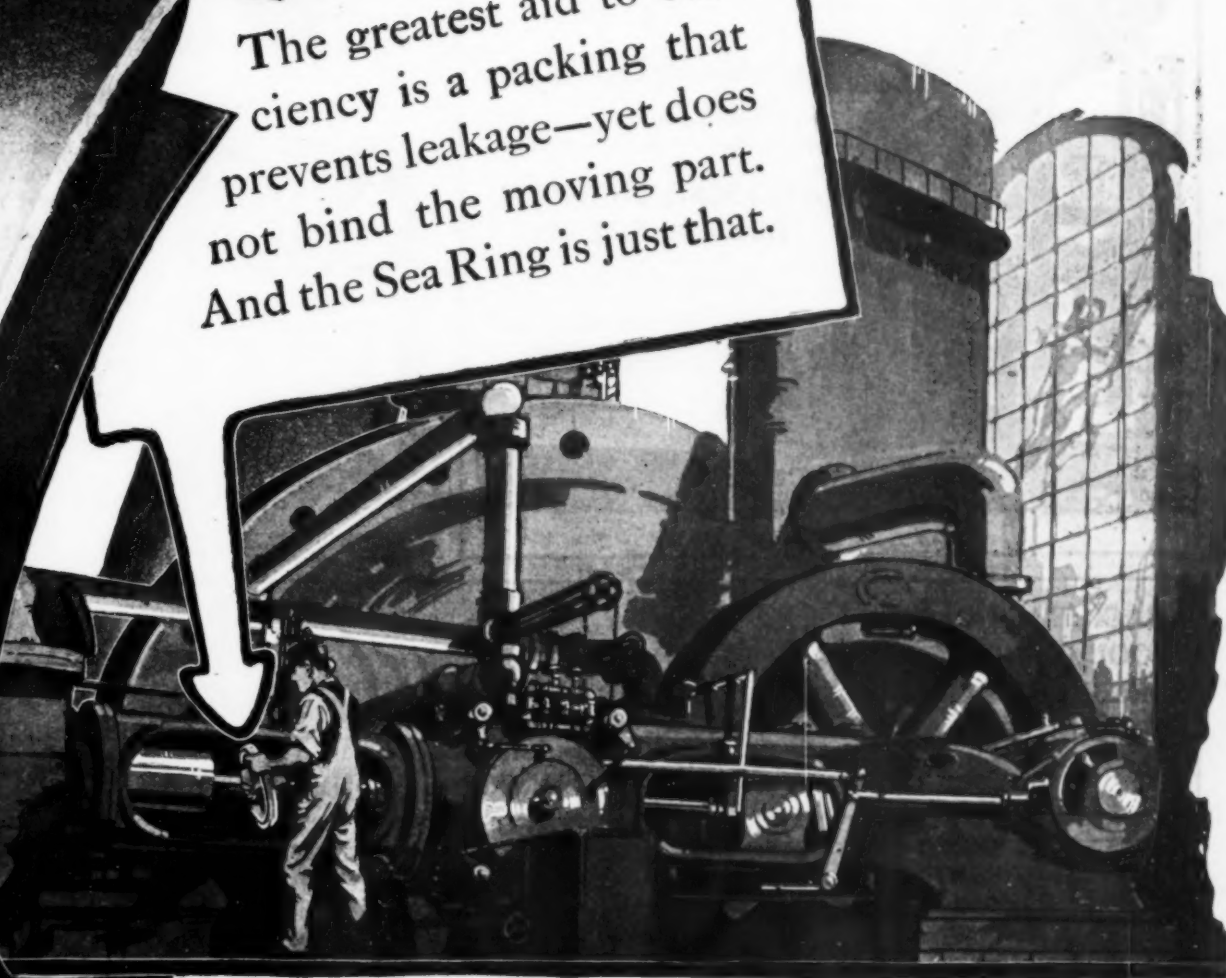
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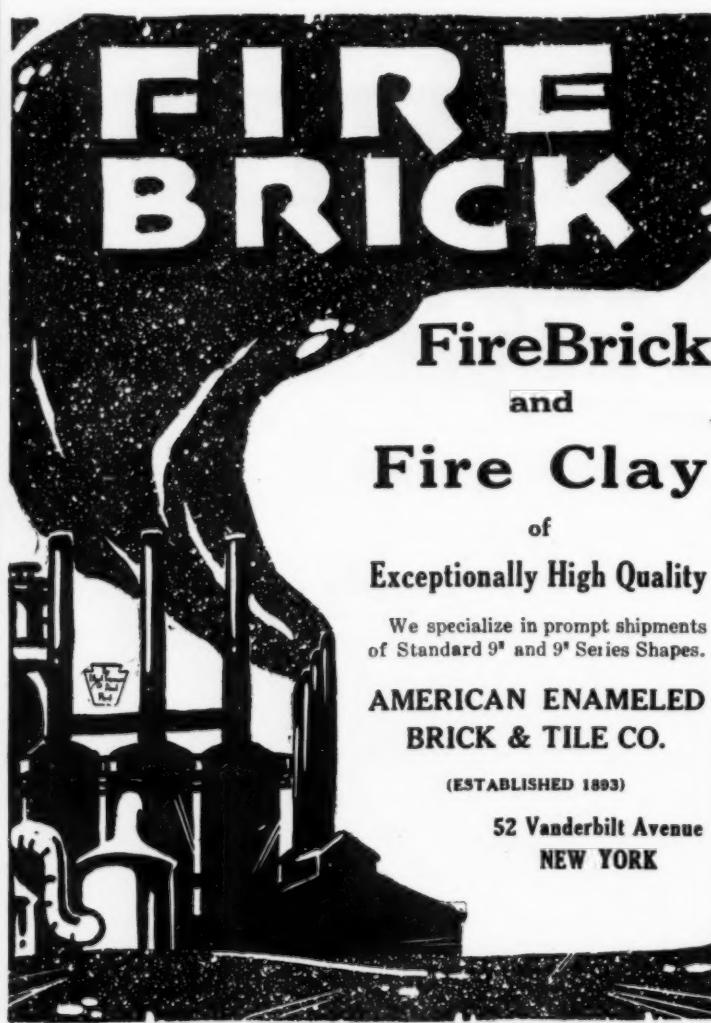
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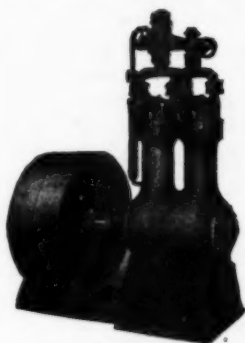
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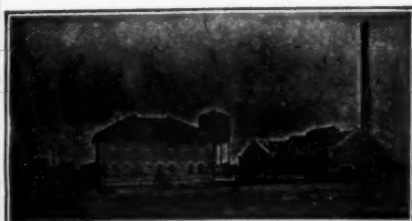
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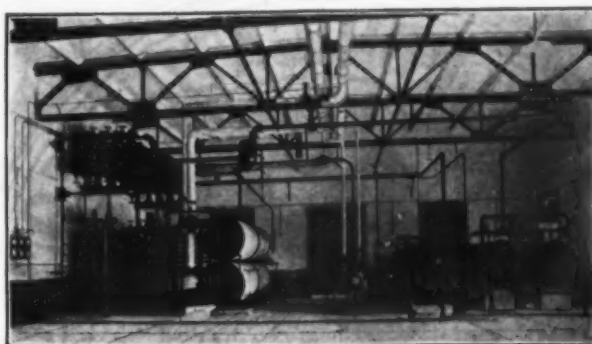
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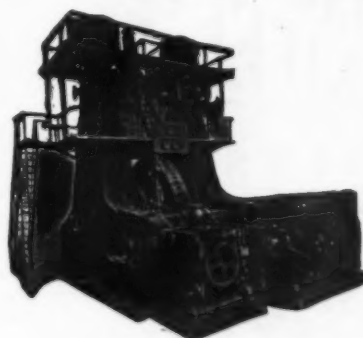
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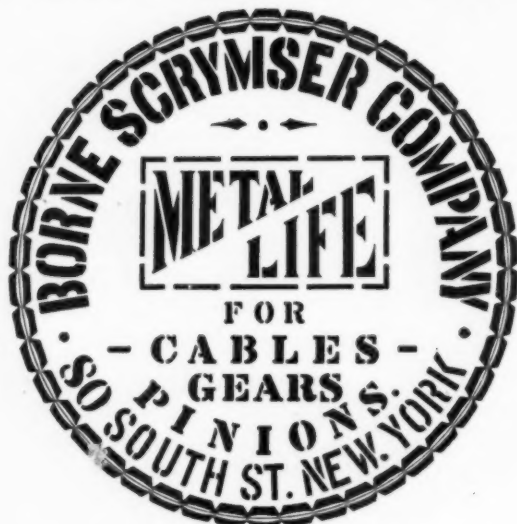
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TEXACO CRATER COMPOUND is used in practically every kind of shop, plant, mine, or engineering operation in this country and is producing unparalleled economies.

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You haven't believed. Because your mind is clean, because you have been surrounded from childhood by an atmosphere of uprightness, and decency, and kindliness, because you hate to see even a dumb brute suffer—you haven't believed.

You have listened, with a doubting shrug, to the tales of German atrocity—doubting because these tales were so bestial, so revolting that to you they were unthinkable. But you, but we, must believe, because they are the truth.

The official documents of England, of France and of Belgium confirm them—absolutely. More—the half, the worst half has never been told in this clean land of ours, has never been told because unprintable.

There's a fester spot on this fair world—a spot that has spread from Berlin until it has poisoned all of Germany. And

there's just one cure—the knife. The poison cannot be dammed up, it must be cut out else this monstrous thing called Kultur will fasten its hideous self on all the world.

Our boys over there have learned to believe. They are seeing the horror and the pity of it all. *They know*, and knowing, they set their jaws and go over the top with a righteous wrath, a holy anger that carries all before it. We have got to feel this war as they feel it. Have got to believe, and believing, set our jaws and do our part whatever that part may be. Right now it's money, money, money.

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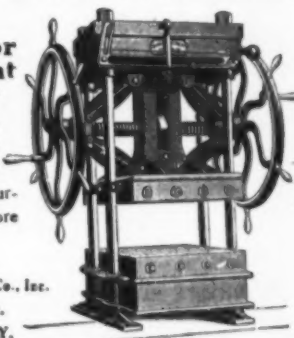
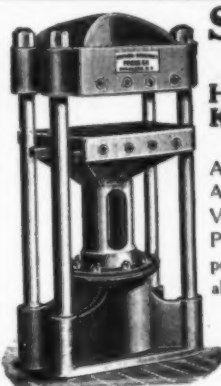
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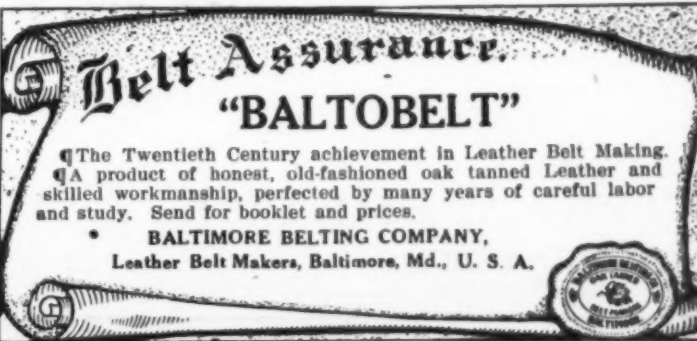
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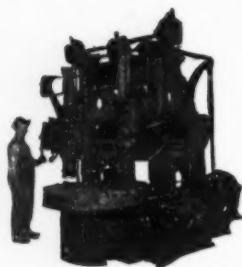
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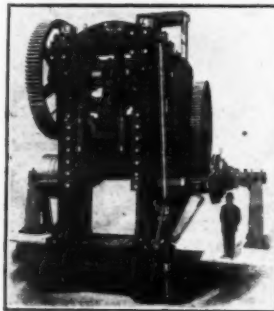
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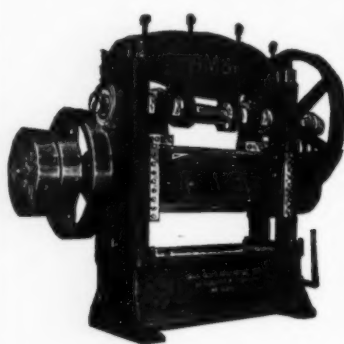
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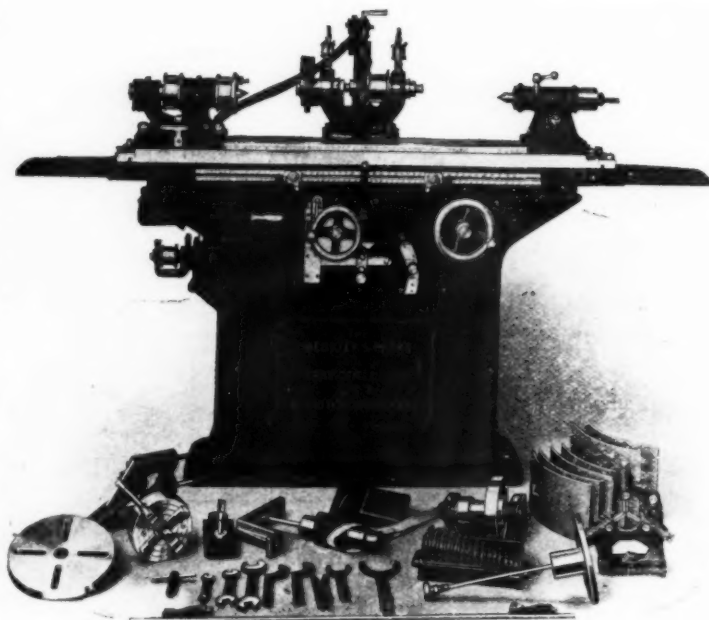
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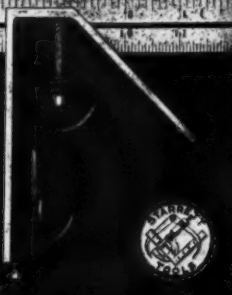
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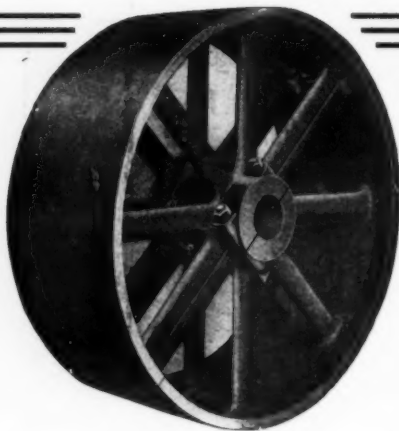
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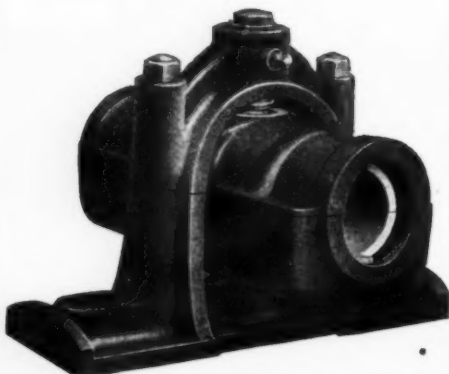
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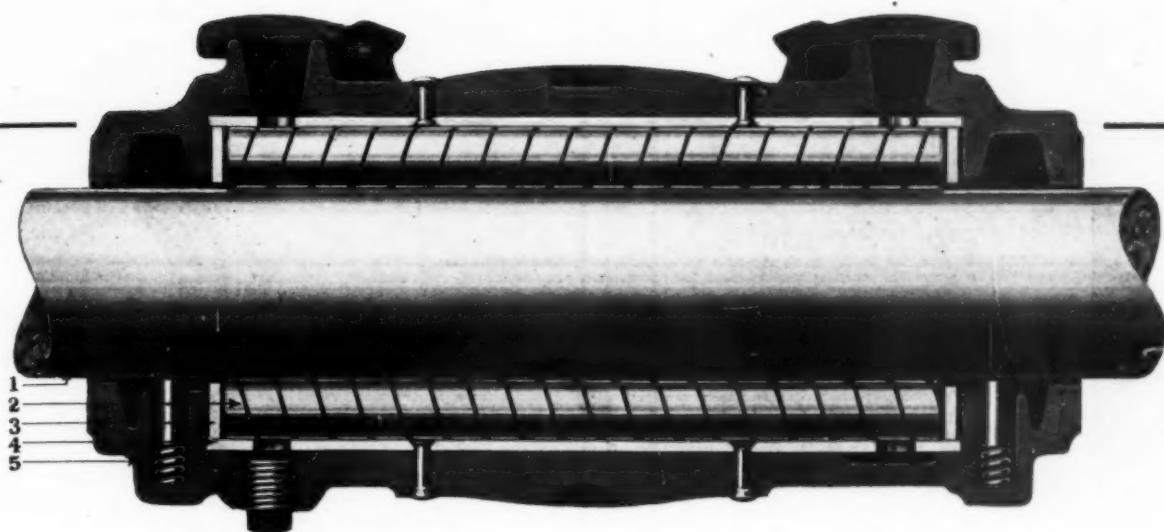
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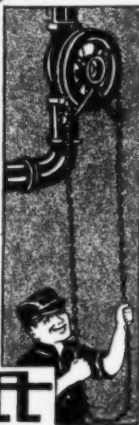
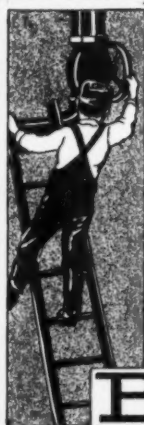
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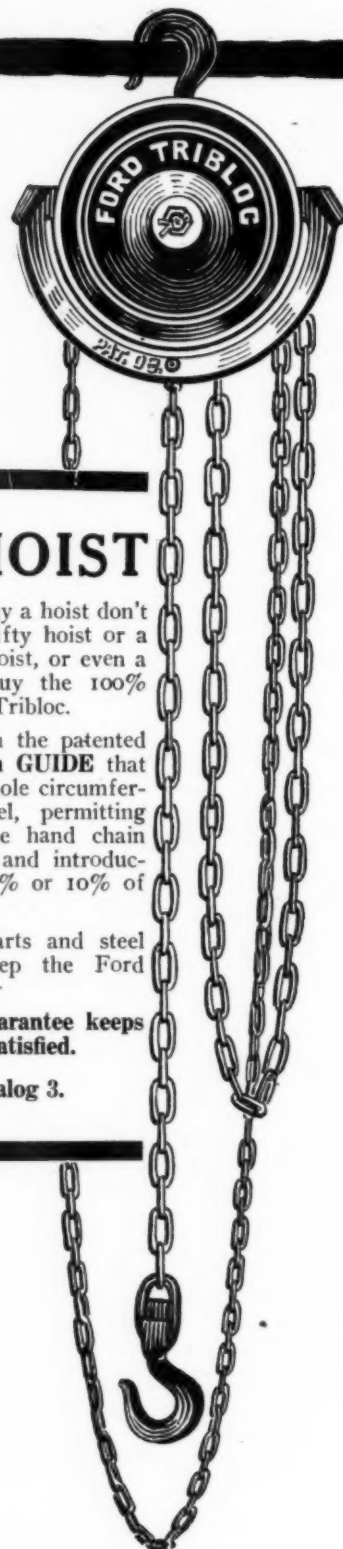
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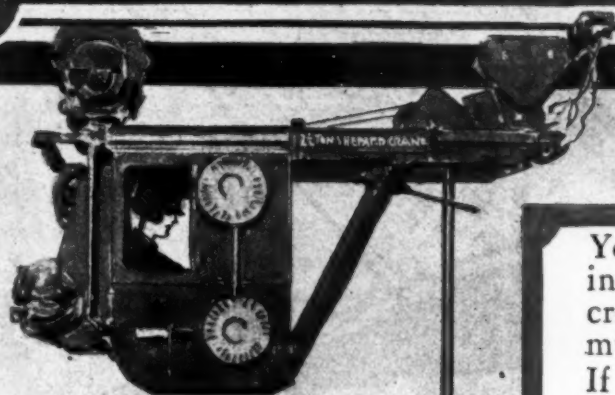
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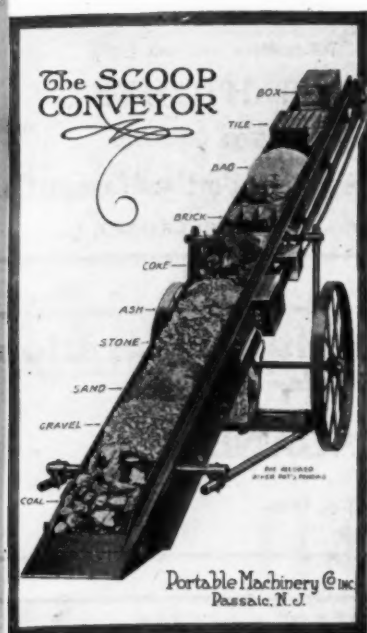
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12
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Hundreds of manufacturers are now using the Scoop Conveyor to load and unload cars, trucks and wagons and to stack into storage piles or bins.

Ask for further information

PORTABLE MACHINERY CO., Inc.
PASSAIC, N. J.

You'll Never "Hook 'er" If you don't have both Brains and Steam

No, sir; never in the world!
You will please notice that the concerns which get Ridgway Elevators are those who have the money to buy brains.

And Engineers with Brains do not put in elevators that are sure to give lots of trouble when they can get a Ridgway Elevator and "Hook 'er to the Biler."

If you don't believe this dictum is true, here is Exhibit A of 3 times 7 is 21 (for luck) samples of the 2000 and more big concerns which are run by Old Billy Brains and Old Daddy Steam:

Penna. R. R.	Procter & Gamble Co.	Lukens Steel Co.
N. Y. Central R. R.	Michelin Tire Co.	Congoleum Co.
New York World	Am. Hard Rubber Co.	Chicago Mill & Lumber Co.
Diamond Match Co.	U. S. Rubber Co.	Swift & Co.
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Strd. Underground Cable Co.	Midvale Steel Co.	Spanish River Paper Co.
Gen'l Refractories Co.	American Pulley Co.	
Hammermill Paper Co.	Lowell Bleachery	
	Crane & Co. (Dalton)	
	Merrimac Chem. Co.	



Elevator in Large Soap Factory in Jersey City



Double Geared



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Yale & Towne Mfg. Co.
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H. J. Heinz Co., "57"
International Harvester Co.
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Remington Typewriter Co.

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Continental Can Co.
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Ask these fellows what it means to

"Hook 'er to the Biler"

The Ridgway & Son Co.
COATESVILLE, PA.

Elevator Makers to Folks Who Know

Warsaw Elevator Company

T. FRANK WILHELM, Manager
Special Attention Given to Repairs
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GRINDING WHEEL DRESSERS

of Every Description
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DIAMONDS
The Desmond-Stephan Dresser Co.
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ELEVATORS MOFFATT MACHINERY MFG. CO.

HAND—BELT—ELECTRIC
AND HYDRAULIC

MACHINISTS AND FOUNDERS
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American Elevators Built by AMERICAN ELEVATOR & MACHINE CO. INCORPORATED LOUISVILLE KY.

Standard for a third of a century.
Passenger and Freight.
All Powers.

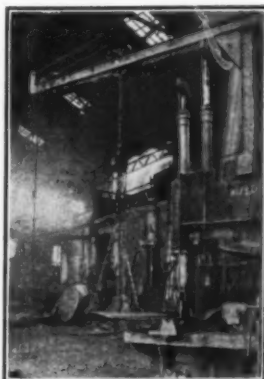
TURNER ELEVATORS
K. C. ELEVATOR MFG. CO.
(Established 1881)
2601-3-5-7 Madison Ave., Kansas City, Mo.



You Get the Speed, Lift and Endurance

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WRIGHT High Speed Chain Hoists



Handling heavy plates for punching with Wright High Speed Hoist

They are doing first rate work in shops, foundries, factories and wherever a hoist can be used.

Catalogue R-16 is ready

WRIGHT MFG. CO.
LISBON, OHIO



The picture shown above is very simple—merely a motor-truck and a concrete road;

And yet, simple as it may appear, it typifies at once the South's greatest need and greatest opportunity—the readjustment of the road surface to the new freight vehicle for the hauling of heavier loads with greater dispatch at reduced power cost and lessened wear on the road.

The above view duplicated on all main highways in the South will mean an unparalleled development in agriculture and commerce.

Public spirited citizens desiring to inform themselves on how to permanently readjust roads to meet new conditions in their respective communities may obtain such information by addressing:

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BIRMINGHAM, ALA.



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Permanent**

— SAVES GASOLINE —

— CONNECTS
FARM WITH CITY —

— NO MUD NO DUST —

Write us for free copy
"Concrete Highways"

DIXIE PORTLAND CEMENT CO.
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YOUNGSTOWN, OHIO

Manufacturers of

Bee-Hive and By-Product Coke, Coal Tar, Sulphate of Ammonia, Benzol, Toluol, Xylol, Light and Heavy Solvent Naptha, Napthalene, Ore, Washed Metal, Basic and Bessemer Pig Iron, Low Phosphorus Pig Iron, Forging and Re-Rolling Billets, Slabs, Sheet and Tin Bar, Blue Annealed, Black and Galvanized Sheets, Formed Roofing and Siding, Single and Double Pickled Sheets, Furniture, Automobile and Deep Drawing Stock, Etc.

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We produce only one grade

THE HIGHEST

ALWAYS UNIFORM

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Southern Minerals Corporation

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Marine "VITA" Glue

Sets and stays in seams.

Has tenacity and vitality.

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**IMPERIAL WELDING
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OXY-ACETYLENE PROCESS

Welds everything in metal—cuts anything in steel or wrought iron. We can give QUICK WELDING SERVICE in our new shop. An aid to manufacturers having Government contracts. Full data on request. Write for Free Catalog.

The Imperial Brass Mfg. Co., 507 S. Racine Ave., Chicago



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by the use of our No. 3 (Boronic-Copper Alloy), says one of the largest manufacturers of locomotives

This large concern buys our No. 3 (all metal, in shot form) in ton lots, and when asked what they use it for, they say "IN EVERYTHING." They discovered that they can increase the life of their babbitts 300 per cent. by the use of but three pounds of No. 3 to the hundred pounds of any grade of babbitt—entered in the simplest way.

BORONIC PRODUCTS deoxidize, purify, solid-cast and improve the physical structure of all metals "from gold to steel."

See our advertisements in the National Telephone Directory (Classified) of the Reuben H. Donnelly Corp. Our lists of products are filed with and can be seen at all the service stations of this corporation.

Send for our Literature and Price List NOW.
You will be greatly benefitted if you ACT.

American Boron Products Company, Inc.
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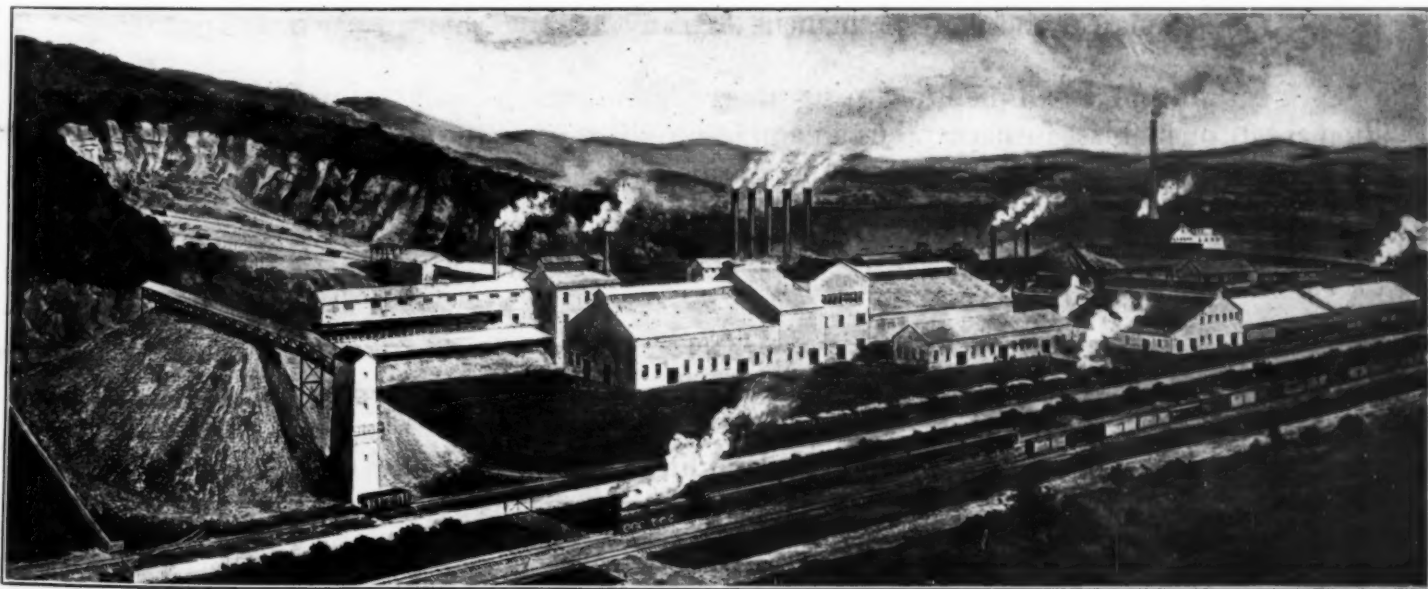
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Foreign Distributors:

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We will not accept any business of a commercial character nor orders of any kind unless approved by the
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GENERAL VIEW ENLARGED PLANT, CLINCHFIELD PORTLAND CEMENT CORPORATION, CAPACITY 5000 BARRELS DAILY

Reliable Structures

No. 5 in a series of advertisements on the
COMMERCIAL UTILIZATION OF BLAST FURNACE SLAG.

Whether you erect an immense commercial structure or a modest dwelling-house with concrete, its permanence, fireproofness and durability will depend entirely upon the quality of that concrete. And the quality of that concrete may be determined before its ingredients enter the mixer.

The best Portland Cement is essential—likewise it is necessary that a good grade of sand be used. Of paramount importance, however, is the selection of a proper coarse aggregate. For the coarse aggregate is the backbone of concrete.

Many use blast furnace slag in preference to trap rock or gravel because:

1. It provides a better bond—due to its cellular construction and angularity.
2. It is the lightest form of coarse aggregate available—requires less labor and is more rapidly mixed.
3. It is impervious to moisture.
4. It is unaffected by temperature changes.
5. Its peculiar chemical properties preserve any steel that may be used for reinforcement or other purposes.
6. It does not disintegrate when exposed to a fire. (It is made under a temperature of 2800 degrees.)
7. It provides a concrete that will not crack—a concrete that eliminates maintenance expense—a concrete that is practically everlasting.
8. With slag concrete are assured structures that are truly reliable. The test of time has proven this, and further—that reinforced slag concrete construction is more economical and more permanent than any other type of masonry construction.

A careful process of manufacturing and preparing this material is in continual operation at our many blast furnaces; thus an ample supply at economical points of distribution insures prompt delivery of the material to the job.

Address inquiries to

Carnegie Steel Company

464 Frick Building Annex

Pittsburgh, Pa.



Austin No. 3 Standard with special front—the fourth building erected for the Dayton Metal Products Co.

193,400 sq. Ft. for Dayton Metal Products Co.

Four Austin Standard Factory-Buildings have been completed for the Dayton Metal Products Co., Dayton, Ohio. The first of these permanent and substantial structures sold the second, and the others have followed in rapid succession since May, 1917. The fourth has just been completed. The first building is 100x364 ft., the second 200x400 ft., the third 100x336 ft. and the fourth 150x180 ft.—the total of 193,400 sq. ft. for one concern.

Austin No. 3 Standard is the type chosen by scores of concerns. It is 100 feet wide, can be increased in width in multiples of 50 feet and built any length in multiples of 20 feet.

No. 3 Standard is one of 10 types of Austin Standard Factory-Buildings—all completely described and illustrated in the *Austin Book of Buildings*. Let us send you a copy. If your need is urgent, use the wires.

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WASHINGTON - 1313 H St. N. W., Franklin 6420
INDIANAPOLIS - 717 Merchants' Bk. Bldg., M. 6428
PITTSBURGH - 493 Union Arcade, Grant 6071
DETROIT - 1452 Penobscot Bldg., Cherry 4466
CHICAGO - 1374 Cont. Com. Nat. Bk. Bldg., Har. 8360

For Foreign Business: American Steel Export Co.,
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THE AUSTIN COMPANY

Industrial Engineers and Builders

Cleveland, Ohio

(59)

THE AUSTIN METHOD STANDARD FACTORY-BUILDINGS



"STEFCO" Foundry Building, showing side sections and trusses before roof sheets are put on.

"STEFCO" Ready-Made INDUSTRIAL Steel Buildings

"STEFCO"

Steel Buildings are not of
the Light Type—but are
STRONG—RIGID—DURABLE

They are PERMANENT buildings—but have the added advantage also of being readily taken apart, without loss of material, and re-erected on another site, as one building, or into various buildings—because of the fact that they are made of "STANDARDIZED" interchangeable sections.

The fireproof feature means much in the lowering of insurance rates.

These buildings are factory painted (high-grade paint) two coats—interior and exterior. We make what we call the "STANDARD" type—and one that we call "CHICAGO" type, which is still heavier.

DIMENSIONS

Our "STANDARD" type has side-walls that are 8 ft. or 10 ft. high to eaves—and the widths are 10 ft., 12 ft., 16 ft., 20 ft. and 24 ft. (single span trusses). Our "CHICAGO" type has side-walls that are 10 ft. or 12 ft. high to the eaves—and the widths are 24 ft., 30 ft., 36 ft. and 40 ft. (single span trusses). Greater widths may be had in combinations of the aforesaid multiples, in which case center columns would be employed. Any length may be had in multiples of 8 ft., and the buildings may be increased in length, later on, by adding STANDARDIZED sections from our stock.

STRONGLY RIVETED

The trusses are strongly RIVETED, and likewise are the corrugated steel sheets of the walls firmly RIVETED to the steel framework—before leaving our plant. We ship these buildings in sectional units, so that they may be easily erected on your site by ordinary labor, by bolting together the finished trusses and side-sections, and slipping the roof sheets into place.

Write Us Today for Illustrated Folder

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CHICAGO HEIGHTS, ILL.

TENNESSEE COAL, IRON & RAILROAD CO.

General Offices:
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PRODUCERS OF

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Blooms Billets Twisted Squares Slabs
Rails Angles Sheared Plates Bars

PIG IRON

Foundry, Forge, Basic
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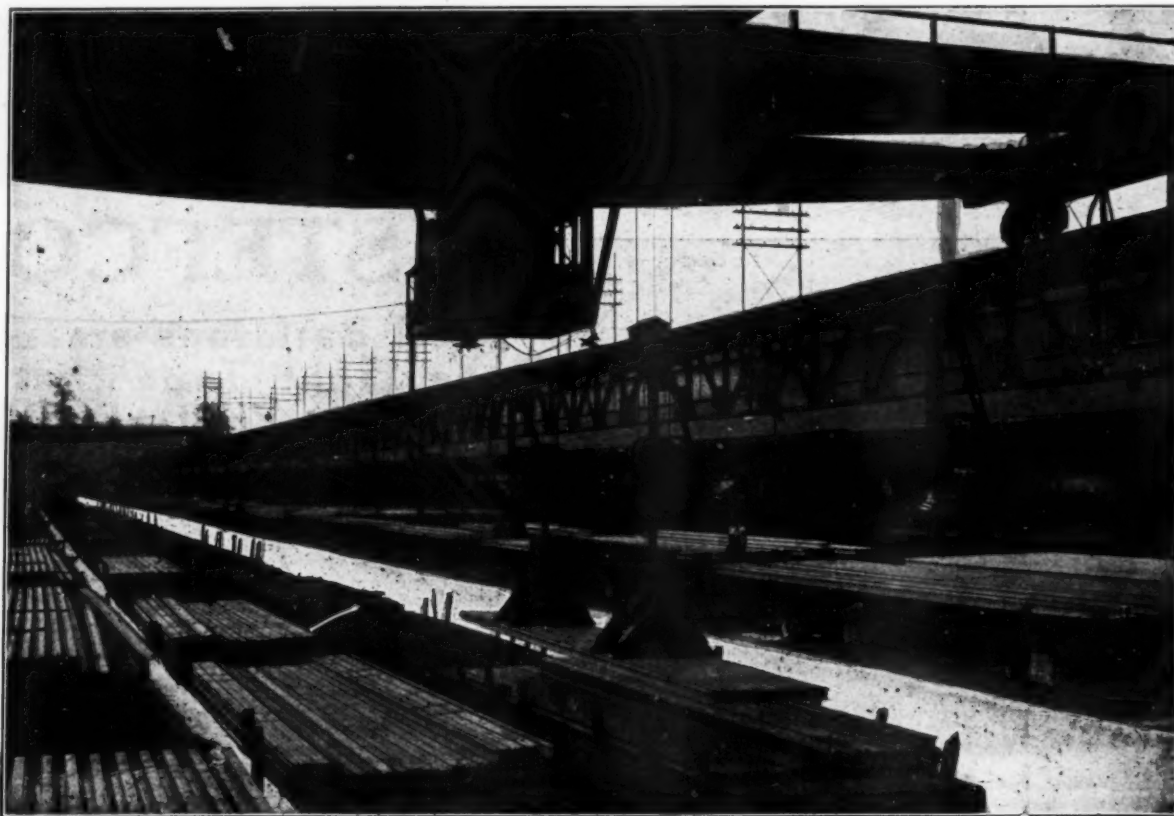
Tennessee Special Tool Steel

COAL

Steam, Gas, Blacksmith, Domestic

COKE

Furnace, Foundry, Domestic



Rail Loading Docks at Ensley Mill. Showing Modern Methods of Rail Handling.

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CAMDEN



WHAT QUESTION

More would you ask about this forging?

We made it and it is a

CAMDEN FORGING

Weighing slightly over 12,000 pounds.

The width of palm is 2' 6" and from back to point 2' 8".

It was delivered on time and is a Rudder Stock for a 400' boat.

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CAMDEN, N.J., U.S.A.

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Ingots, Blooms, Billets, Slabs, Sheet Bars

Blue Annealed Steel Sheets

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Galvanized and Painted Formed Roofing Products

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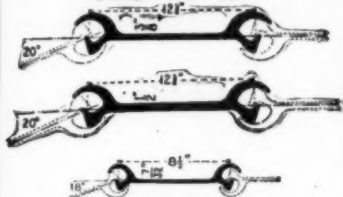
THE TRUMBULL STEEL COMPANY

GENERAL OFFICE: WARREN, OHIO

Types and Sizes of Lackawanna Steel Sheet Piling

The following sections offer types and sizes to economically meet any sheet pile construction problem:

Straight-Web Type



Suitable for general work and especially constructions requiring high tensional and compressive resistance of the pile section. The smallest size is much superior to wooden sheeting in sewer and trench work.

Plate Type



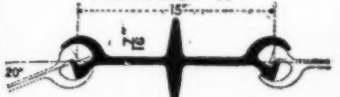
For light cofferdams, permanent work in cut-off walls, core walls, trenches, etc.

Arched-Web Type



Preferable where transverse strength of the pile is of primary importance, as in braced or tied constructions. A wall of this piling is very thin in proportion to its transverse strength, having no greater thickness over all at the centers of the arches than the over-all thickness of the interlocked joints. Flattening the back of the web furnishes a long, straight contact with the waling timbers.

Center-Flange Type

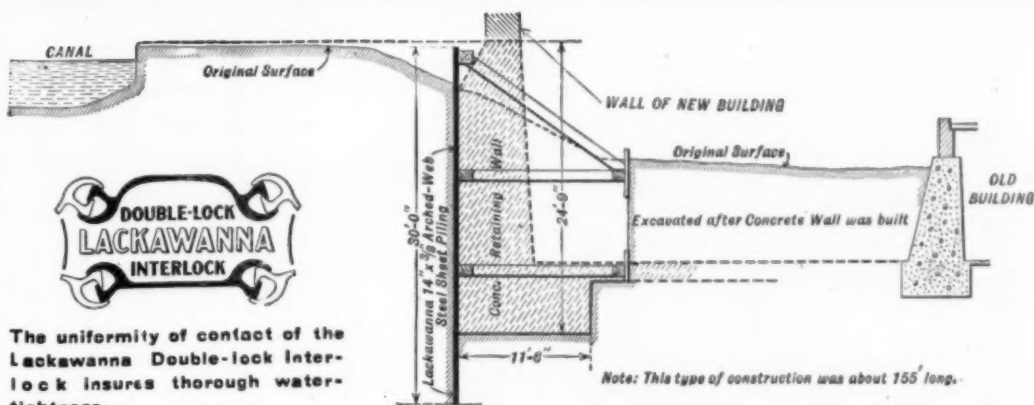


For constructions requiring high tensional and compressive strength, in connection with a fairly high transverse strength. The center-flange acts as a stiffener, increases the section modulus and furnishes means for attaching transverse ties, braces, etc.

Lackawanna Protected Steel Sheet Piling

Best for permanent installations exposed to severe corrosive action. The protective facing of concrete, adhesively and mechanically bonded to the piling, offers a permanent and perfect protection against corrosion and can be driven down with the steel. Waterproof and rigid.

Complete dimensions, weights, and properties of any section sent on application.



The uniformity of contact of the Lackawanna Double-lock Interlock insures thorough watertightness.

Here's an excellent type of protection for foundations in weak soil

A new building at the plant of the American Brass Co., of Ansonia, Conn., has one side parallel to and about 12 feet away from an old canal, at a location where the soil is a soft fill.

Before starting the building, the concrete retaining wall and foundation shown in the diagram was built for protection.

The Lackawanna Steel Sheet Piling was assembled as shown in the photo, driven with steam hammers and left in place permanently. In addition to performing the function of a water-tight cut-off wall this sheet piling also acts as a form against which the concrete was poured.

Mr. J. R. Coe, Chief Engineer of the American Brass Co., has stated that Lackawanna Sheet Piling was chosen after careful investigation and in the belief that Lackawanna is the best form of sheet piling on the market. His judgment was confirmed by the satisfaction of this installation and his company has ordered more for other work.

Likewise, the contractors for the building, Abertaw Construction Co., have frequently purchased Lackawanna Sheet Piling from time to time as needed and have always been well pleased with performance.



Your safety and your profits on cofferdam and retaining wall work demand that you at least be familiar with the contents of our book "Lackawanna Steel Sheet Piling." And if your requirements are unusual, you can get free but worth-while suggestions from our Sheet Piling Engineers.

Lackawanna Steel Company

General Sales Office and Works: Lackawanna, N. Y.

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For Great Britain and British Colonies in the Eastern Hemisphere: Cargo-Fleet Iron Co., Ltd., Middlesbrough, England. For France, Italy, Spain, French Colonies and Protectorates, Italian Colonies and Spanish Colonies in the Eastern Hemisphere: Cle Des Forges & Aciéries de la Marine et d'Homécourt, Paris, France.

383

AWARDED American Steel & Wire Company's American Flat Wire

FLAT COLD ROLLED STEEL

Awarded the Grand Prize at the Panama-Pacific Exposition

MADE in all widths up to 9 inches, for shaping into all forms of manufacture in automatic machines or otherwise, such as butts, hinges, tubes, roller skates, keys, typewriter parts, sewing and adding machine and automobile parts, cream separator discs, buttons, stove and show case trimmings, gun parts, wire chais rims, go-cart parts, and any difficult or plain forming where flat steel of great ductility, strength, finish and uniformity is required.

"Flat Wire Bulletin", describing many uses of flat wire, sent free upon request.

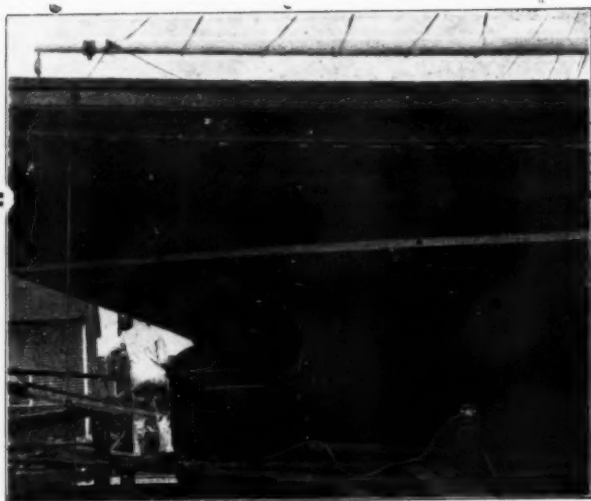
American Steel & Wire Company

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Uncle Sam's Boys Come Back
TRIUMPHANT and VICTORIOUS
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CINCINNATI, U. S. A.

Can Supply You with All Products of
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THE SPRACO PNEUMATIC PAINTING EQUIPMENT SOLVES YOUR PAINTING PROBLEMS

One handy man can do the work of three to five skilled painters using hand brushes, depending upon the nature of the work. Save time and paint.

The Form P-3 equipment is recommended for all general purposes and consists of one Spraco paint gun connected by flexible air and material hose to control head and paint container. The operator has complete control of the air and material pressure, enabling him to handle any kind of liquid coating. The equipment is ready to attach to your air supply.

Where single coat work is required, either a lighter or heavier coating can be secured than is possible with the ordinary brush method. There is no possibility of combining dirt with the paint.

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All parts are of simple design, easy of adjustment, and are made to withstand hard service.

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It will interest you.*

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STEEL

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Sheffield Steels

Made in U. S. A.

This is true Sheffield Steel made to Sheffield analyses under Sheffield expert direction. Warehouse stocks are in considerable quantity in most shapes and sizes, and Aborn Service Shipments are quick. What shapes, sizes and quantities do you require at once?

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the old stone fence, so familiar in many sections of the country, undoubtedly stands supreme, but when it comes to elimination of time-consuming, back-breaking labor, saving of ground and other advantages, the modern wire fence more than holds its own.

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one of our important products, has every point of superiority inherent in wire fencing together with special construction features and unusual durability.

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STEEL

OPEN HEARTH

BILLETS, BLOOMS, SLABS, SHEETS, BARS

*"Pioneer" Pig Iron**Merchant Bars, Shapes, Skelp, Shafting,
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SPECIAL NOTICE

The reason our STEEL PRODUCTS are so uniform in quality is due to the fact that every operation of manufacture, from the Iron Ore to the finished article, is controlled at our steel plant. Iron Ore and Coal are mined on our properties—the Ore is smelted in our Blast Furnace, and the Pig Iron is converted into Basic Open Hearth Steel in our Steel Furnaces. By controlling the manufacture from the "ground up" we are in position to give our trade material exactly as specified, and to guarantee the quality. Our daily output is over 500 tons of Basic Open Hearth Steel Products.

Our works are located at Alabama City, Alabama, in the heart of the rich mineral and manufacturing section. Four important TRUNK LINES operate fast through trains South, East, North and West. Alabama City is especially well located, owing to its close proximity to the Southern ports of New Orleans, Mobile, Pensacola and Galveston on the Gulf of Mexico, and to Savannah, Brunswick, Jacksonville, Charleston, Wilmington and Norfolk on the South Atlantic.

Low inland rail freight rates and quick transportation are enjoyed to these ports, from which vessels sail to all parts of the world. Special rail freight rates are also in effect from Alabama City to North Atlantic ports, such as Baltimore, Philadelphia, New York and Boston, and to Pacific Coast ports, such as San Francisco, Tacoma, Seattle, Portland and Vancouver.

We will appreciate your inquiries when in the market, and will gladly furnish any information requested as to Inland Railroad Freight Rates to American Ports, Ocean Rates, Sailing Schedules, Insurance, Consular Documents, etc.

GULF STATES STEEL COMPANY

General Sales Offices

Works:
ALABAMA CITY, ALA.

BIRMINGHAM, ALABAMA, U. S. A.

HAVEMEYER BARS

"Every Pound Pulls"

By Using

HAVEMEYER BAR SERVICE

YOU GET

IMMEDIATE SHIPMENT

OF YOUR REINFORCING STEEL

FROM OUR NEAREST WAREHOUSE

Birmingham warehouse carries the largest stock of reinforcing bars in the South—all sizes—rounds and squares. Address Birmingham Office.

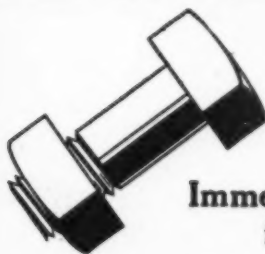
CONCRETE STEEL COMPANY
42 Broadway, NEW YORK

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The repairing of scales is one part of the service which The Standard Scale & Supply Co. extends to Scale users.

Scales of all makes, styles and capacities repaired.

We employ a large force of expert Scale Mechanics, and our experience as scale manufacturers puts us in position to render first class Scale Repair service.

If your scales need repairing, write, call or wire

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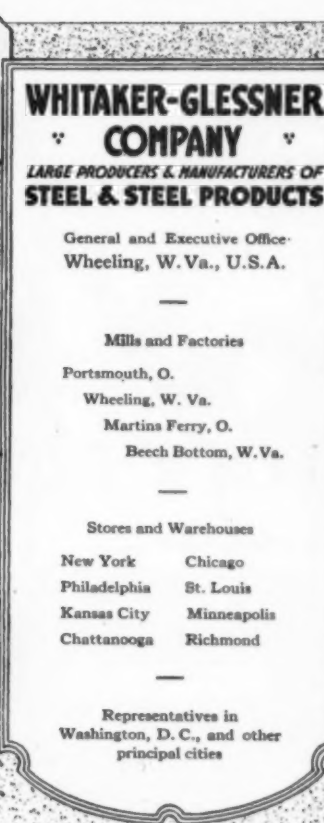
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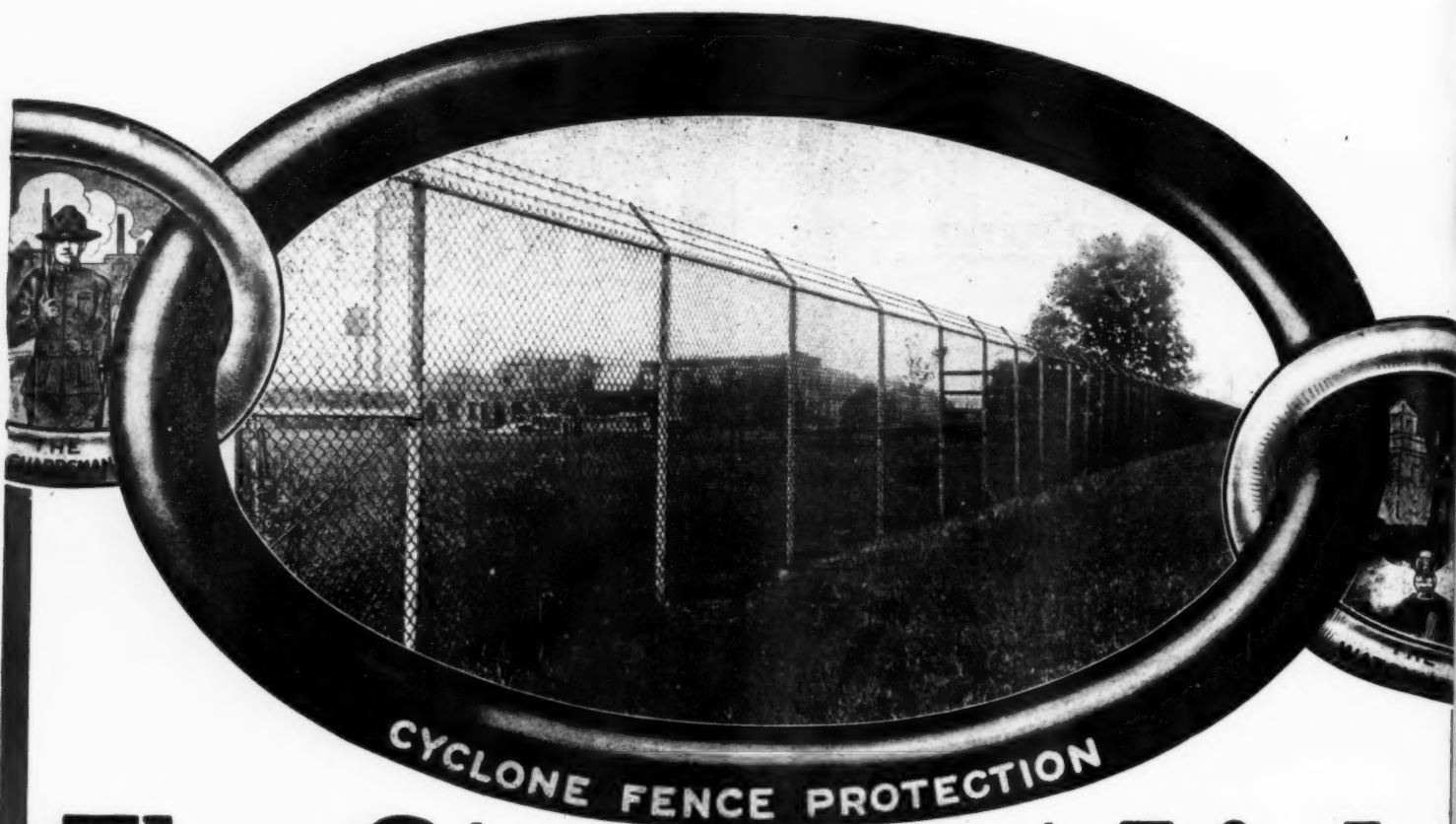
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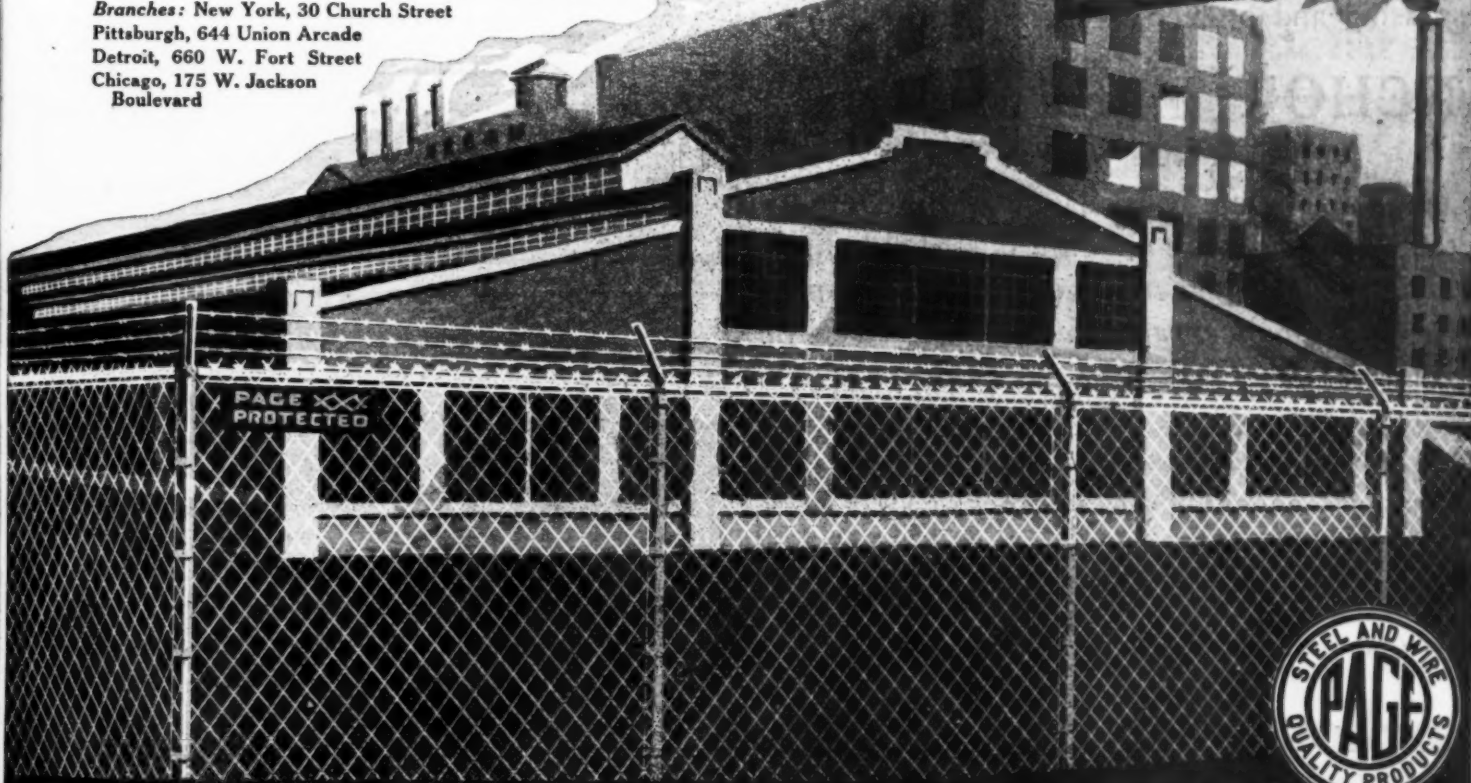
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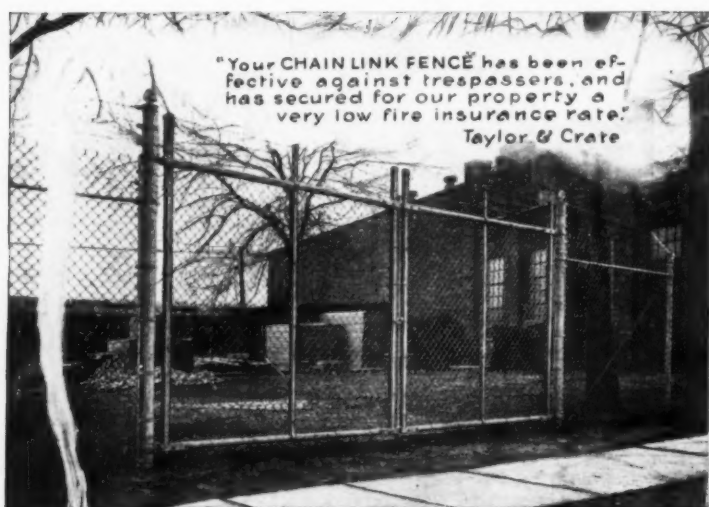
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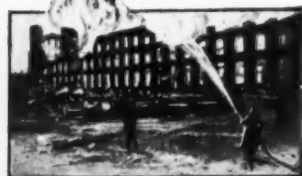
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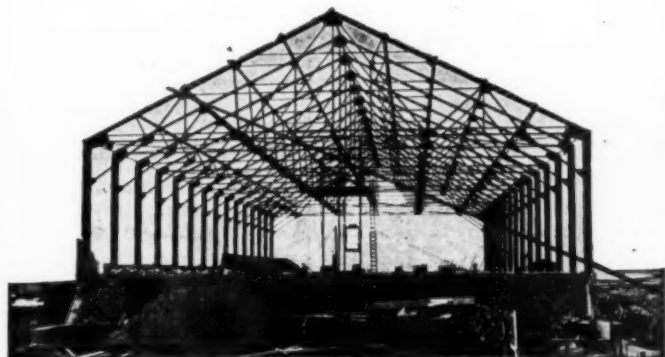
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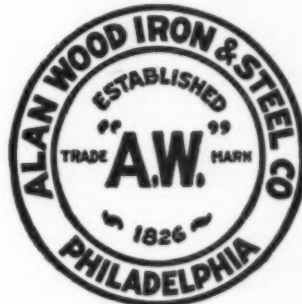
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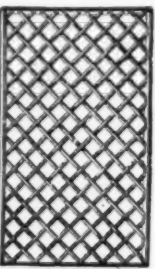
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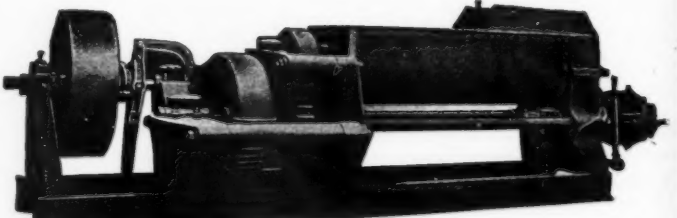
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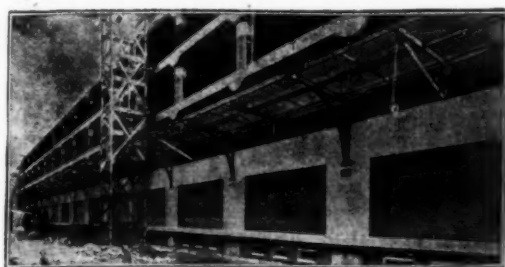
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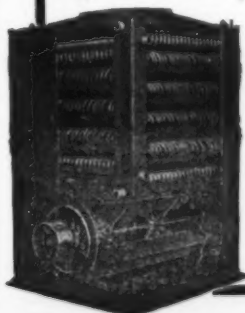


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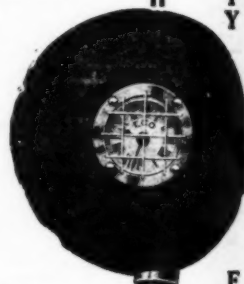
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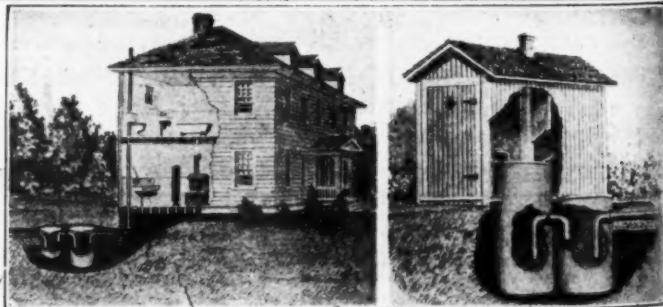
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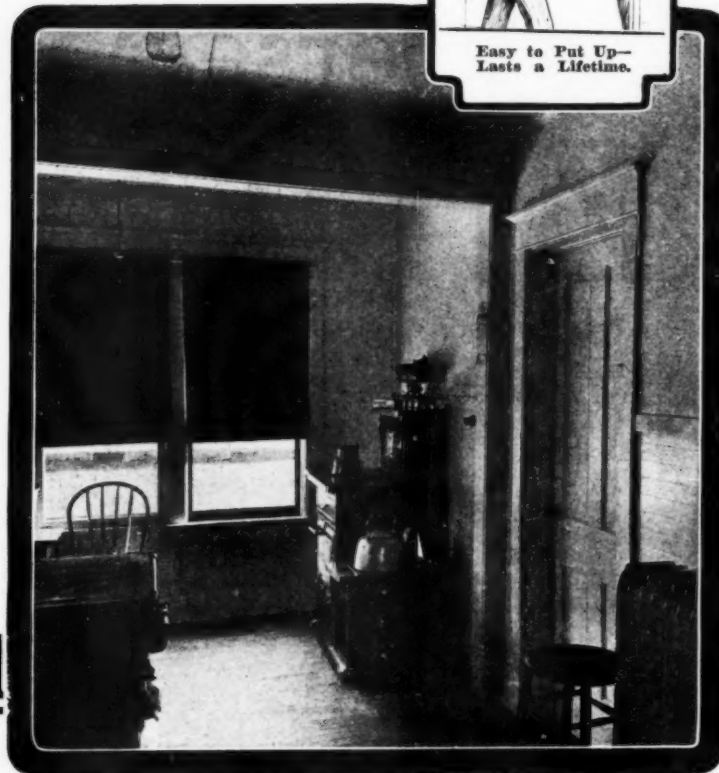
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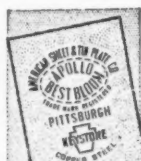


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TERNE PLATES
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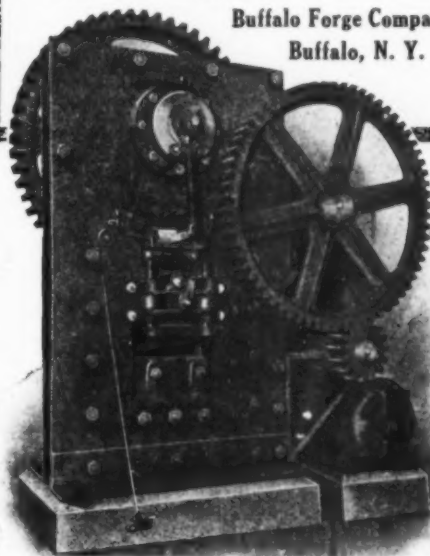
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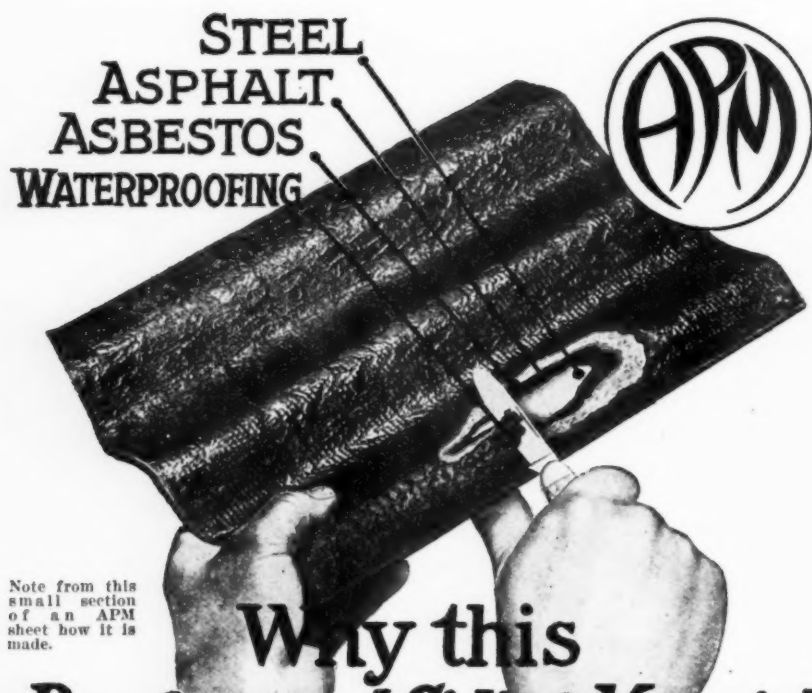
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There are no exposed edges in APM construction, because *all edges and ends* as well as both sides of the sheet are protected.

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With Improved "Lock That Locks." Watertight—Fireproof—Durable—Economical
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An **ever increasing** number of BONANZA Roofs. Therefore it **must** be a roof that is **right**—that will give you satisfaction from every angle—quality, pleasing appearance, water and fireproof features—that you, too, will find to be—

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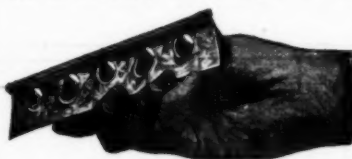
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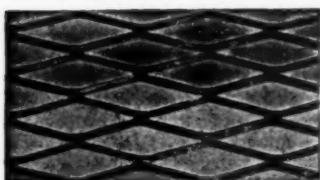
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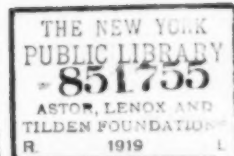
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THE SOLDIERS MUST DO IT FOR US.

SEVERAL weeks ago the MANUFACTURERS RECORD referred to an American soldier in France who wrote that new "cuss" words had been invented for application to the Kaiser.

That soldier is a 23-year-old private in the Ordnance Department, and is connected with ordnance repair shops located about 125 miles from Paris. He was not a "cusser" in America, and it must be that close knowledge of kaiserism has caused him to learn those new "cuss" words. Rapid transit was the keynote of that soldier's getting into the fight. He enlisted in November, 1917, and in May, 1918, arrived in France, after training at cantonments in Alabama, Illinois and New Jersey. Writing to America under date of September 11, he said:

"Here is a clipping from the Paris edition of the New York Herald. I wonder if the Kaiser has ever seen any of Mr. Edmonds' articles. Why don't you send the old nut a copy of the MANUFACTURERS RECORD? They say he turned white overnight. I suppose he would have 'stoppage' of the heart if he read the MANUFACTURERS RECORD. Tell Mr. Edmonds to send him a free subscription."

The MANUFACTURERS RECORD would gladly contribute a few copies of the MANUFACTURERS RECORD to the edification of William the accursed, but, unfortunately, we know of no way of having them delivered to him. We are not allowed to communicate by letter or otherwise with citizens of the enemy countries, and we must therefore leave to the soldiers of America and the Allies the privilege of shooting into kaiserism individually and collectively what we have tried feebly to say about that nation of assassins and outragers.

BEWARE OF UNVOUCHED FOR MEN.

SHORTLY after the publication last week of the statement made in regard to an address at Farmville, Va., of a man claiming to be a major of the army we received a telegram stating that he was discharged from the army in August last for inefficiency. This emphasizes the point made by us, that no one wearing the uniform of this country should be allowed to pose as an army officer taking up a public collection without being able to show his credentials.

What "Impartial Justice" Must Mean to be True to God and Civilization

PRESIDENT WILSON in his New York speech last Friday said:

"First, the impartial justice meted out must involve no discrimination between those to whom we wish to be just and those to whom we do not wish to be just. It must be a justice that plays no favorites and knows no standard but the equal rights of the several peoples concerned."

"Impartial justice" must be meted out, and our nation must be made very clearly to understand what that means if we accept President Wilson's statement as his definite, determined policy from which he cannot be swerved by all the tremendous power which great banking houses in Germany with world-wide connections will put forth to save Germany from the inexorable fate of "impartial justice." President Wilson needs to have the utmost backing of every honest man and woman in America in his demand for "impartial justice" based on the true meaning of these words. There should be only one meaning possible, and if ever any effort is made to change that meaning, then we must come back to the true interpretation and overwhelmingly demand justice. On this question of justice the Biblical Recorder of North Carolina recently said:

"The terms we dictate will be just, but they will be our terms, and Germany shall have no voice in making them." This statement and President Wilson's words "impartial justice" must be rightly interpreted as to the meaning of justice or else we may be guilty of great injustice.

When we think of being "just to Germany," let us not forget justice to Belgium; justice to the thousands of women who have suffered the last agony that can be inflicted upon womanhood; justice to the mangled children who in the innocence of babyhood have been ruthlessly destroyed by Germany; justice to the aged men and women who, without provocation, have been murdered in cold blood; justice to the tens of thousands of women driven back from Belgium behind the armies of Germany to endure all the horrors which that drive means; justice to the thousands of men who have been enslaved and made to work to produce food and munitions for Germany; justice to the Belgians who have been placed in advance of German troops in order that their bodies might stop the bullets intended for German soldiers.

Oh, yes, let us be "just to Germany," but let us first have justice in Belgium.

"Justice to Germany!" Certainly. Civilization demands that the terms of peace we dictate must be "just to Germany;" but let us be sure that they will be just to France, one of the sublimest figures in all human history.

Let us be sure that they are just to the millions of noble French men and women, who have died for God and humanity.

Let us be sure that these terms will be just to the women and the children of France, who endured

horrors possibly greater even than those inflicted upon Belgium.

"Just to Germany," certainly, but let us be just to the men who have been killed on the battlefield in defense of civilization, to the men and women, the Red Cross nurses and the hospital attendants, cold-bloodedly murdered by Germany's ruthless assassins.

"Just to Germany." Certainly. Our peace terms must be "just to Germany," but let us bear in mind that justice must be given first to the victims of Germany's accursed war.

Let us be just to the millions of England's troops who have made the supreme sacrifice in defense of Christianity and civilization and womanhood.

Let us be just to the men who have been murdered on the high seas.

Let us be just to the memory of the women and children and innocent men whose bodies were fed to the sharks when Germany shocked hell itself in the sinking of the Lusitania.

Let us be just to Italy, and remember how she has struggled heroically, sublimely, not only against the armies of Germany and its allies, but against all the hellish work of Germany, as it sought to betray Italy through the machinations of German spies in Italy.

And when thinking of being "just to Germany," let us remember the awful chaos in Russia—that wreck and ruin of a once great nation, where the streets run red with blood, where crime more unbridled than human history has ever known marks the course of German traitors to Russia in the overturning of all that has been sacred to life in Russia.

As we contemplate the fearful suffering, the agony of the millions who are dying in Russia of starvation, of the agony of millions who see the nation under the domination of the red-handed murderers, led by Germany's paid agents, when no man knows from day to day who will be the next victim of the work of these traitors, let us be just to Russia. Let us also be just to the millions of Russians who died in defense of civilization; to the tens of thousands who were butchered even when they offered to surrender; to the tens of thousands who, when unable longer to fight and willing to surrender, were driven back to death in the swamps in the carrying out of Germany's accursed campaign of frightfulness.

"Just to Germany" surely we shall be, but let us first be just to the soldiers of America who are dying on the battlefield to save the world from being conquered and robbed and looted by Germany; just to the millions of men who are being compelled to give up business and home and loved ones to go out into this great crusade to prevent Germany from destroying America, and just to all the men and women in America who are giving their lives to this holy cause.

Oh, yes, the terms of peace should be "just to

Germany," but no human words have yet been coined which would adequately characterize what "just to Germany" would really mean to Germany, for if we should be "just to Germany" we would have to deal with the whole of the German race exactly as we deal with the vilest murderer who plots and plans and finally kills some helpless man or woman in order to loot, counting their murder as nothing for the sake of the gain of the stuff of which the victim is robbed.

To be "just to Germany" we will have to treat all Germany exactly as we would treat the individual criminal who destroys womanhood and childhood; as we would treat the individual who for years preaches crime and eventually commits crime of the vilest kind to the greatest extent possible, and when we have reckoned with Germany on this basis and have been "just to Germany" there wouldn't be anything left of Germany, for justice to Germany's victims would literally compel that to be just in our dealings with Germany that accursed country should cease to exist as a nation except under the military control of the Allies until Germany has paid the just penalty of its crimes. The last thing in the world which Germany wants is justice.

When talking about peace terms based on justice, let us remember first that there should be justice to the law, international and national, against crime; justice to humanity, which should punish to the extreme the criminals who sought to enslave humanity, and justice to God himself in being used as His instruments against the criminals who boldly and blatantly have defied every law of God and man.

Is this the justice which President Wilson and others mean when they refer to peace terms with justice? We hope so, for nothing else would be "impartial justice."

"UNCONDITIONAL SURRENDER."

REV. P. T. HALE, in a letter to the MANUFACTURERS RECORD commending the action taken by the First Baptist Church of Baltimore in putting itself on record in denunciation of Germany's crimes and in demanding that there shall be no peace except based first on unconditional surrender and then on the death penalty of the leading criminals, writes:

"I think the resolutions ought to be published widely. They are the things for which I have cheerfully given four sons to the service, and have two others if needed. Nothing less is worthy our sacrifices. Keep them going."

It is a notable fact that men who, like Dr. Hale, have sons in the army are most determined in their demand for pushing this war to the "unconditional surrender" of Germany and its allies.

A number of other ministers have written in hearty commendation of these resolutions, which were printed in the MANUFACTURERS RECORD last week, while the editors of The Outlook express in a personal letter their hearty commendation; and the Christian Endeavor World of Boston, in a personal letter commending these resolutions, says that they should be "burned into the consciousness of the American people." The editor of Leslie's writes that he will use them editorially with a view to arousing other churches throughout the land to similar action. The pastor of a leading church in the North wrote that he would read the resolutions or the paper during the course of his Sunday evening "Heroes Day" service, and ask that the congregation should by a rising vote adopt them as an expression of its opinion.

Thus there has been started through the land a movement toward having the churches of the country give voice to their sentiment that in this war, brought on by the most accursed power which ever existed on earth for the murdering of millions of people in order to conquer and loot the world, there should be no peace until the leading criminals have paid the penalty of their crimes by death and until the armies and navies of Germany and its allies have unconditionally surrendered.

ON TO BERLIN AND UNCONDITIONAL SURRENDER.

THE surrender of Bulgaria is but one step in the great fight of the forces of Heaven to combat the forces of Hell turned loose four years ago by Germany and its Allies. Bulgaria has been one of the criminals. It deliberately put up its soul for auction and sold itself to the highest bidder—Germany.

The surrender of Bulgaria does not, however, mean the end of the war. It is a long step in that direction. It gives the Allies a tremendous power in the East, and it cuts Germany's line of communication with Turkey and with the Eastern world, but Germany still has great fighting power left. It may keep on fighting through the winter, and perchance well into next year, but every day that passes should intensify the determination of America and the Allies not to stop this side of Berlin and Vienna and Constantinople.

Germany is tremendously afraid of seeing the Allied armies cross its sacred borders. The German soldiers do not want to let the Germans see what war means, for they want to save their own people from the horrors which they deliberately inflicted upon Belgium and France. But the Allied armies must push forward to Berlin and Vienna and Constantinople regardless of any offer of peace or unconditional surrender that Germany may make.

Not until the flags of America and our Allies float in triumph over the capitals of these nations of assassins, not until the flags fly in triumph over the hemes of the whole Potsdam gang, will Germany quite realize that it has been beaten to the dust by the forces of right against its forces of evil.

The civilization of the future demands that there shall be no halting in the march to Berlin. Even though Germany, beaten to the dust, should offer unconditional surrender and plead that its people be spared the humiliation of seeing the Allied armies march millions strong across the Rhine and to Berlin and Vienna, we would be false to the future if we heeded their pleas.

Justice demands that Germany must, in sackcloth and ashes and in deep humiliation, see for itself the triumphant march of the victorious armies of America and the Allies. This is due to all civilization. It is due to the heroic men who have struggled in the great fight to save the world from German domination. It would be an act of unspeakable injustice to the soldiers of America and the Allies if they were denied the privilege of entering Germany and Austria.

Let no false sense of pity, let no neurotic sympathy for the criminals be created in this country by false leaders, who, under pro-German influence, would seek to save Germany from due punishment.

Justice to the men who have died on the battlefield; justice to the millions and the tens of millions of broken hearts, broken because of Germany's accursed war; justice to the womanhood dishonored as never before in human history; justice to the mangled children; justice to all the civilization of the future if civilization is to be a reality, demands that the unceasing cry should go throughout this land that until the armies of America and the Allies march millions strong down the streets of Berlin and Vienna and Constantinople there should be no word of peace. To do less than this would be a reflection upon all that we term justice and would be criminal weakness instead of justice.

On to Berlin and unconditional surrender of the assassins, the murderers, the looters, the freebooters, the outragers, the manglers of children, the cringing cowards who will soon, when once they find their power is gone, seek to save themselves from utter destruction.

HOW FAR DID BREWERY MONEY RAMIFY IN ITS EFFORT TO CONTROL AMERICA FOR GERMANY AND THE BEER TRADE.

"MY DEAR BOB," otherwise known as Robert Crain, a distinguished Baltimore political attorney for the United Brewers, has many years, we understand, been in the receipt of a retainer of \$25,000 to look after the brewery interests of the country in Washington. We have also heard that this annual retainer does not cover important items for special cases. It has been said that "Mr. Crain is a born lobbyist and has the power of getting in with prominent people and persuading them to think his way." The brewers should be ashamed of themselves for paying such a niggardly salary to "My Dear Bob," considering the immense value to their traffic. "My Dear Bob" should demand a good big percentage on all the profits of all the brewery interests kept in operation for years by his ability to shape affairs in Washington. The brewers have been robbing "My Dear Bob" of well-earned income many times as great as the beggarly \$25,000 which they have been paying him.

It is probably very true that "My Dear Bob" is so lovingly called by Mr. Feigenspan in a letter giving in detail the subscriptions by brewers to the fund which enabled Mr. Brisbane to combat the Washington Times, has indeed a great power to get into close and familiar touch with prominent men. That has been credited to him for a long time.

In the meantime, what will Congress do in regard to further investigations as to the use of brewer and pro-German money in controlling or influencing newspaper and political activities in this country? And what will Congress do toward finding out some of the facts which may now be hidden away in grand jury reports in Pittsburgh and Texas and elsewhere as to the extent to which the brewers' interests sought by big contributions to congressional elections, and thus control the country at a time when these brewery interests were the chief backers of the German-American Alliance, which was actively and aggressively seeking to weaken the moral forces of America as to the war and as to the liquor traffic? Has Congress gone just far enough to touch the bare edge, and are there other stinks of infamy to be opened up? If so, it would be recreant to its responsibility if it fails to uncover the entire situation, regardless of who may be helped or hurt by the exposures which some men would startle the country if the testimony now carefully locked up as to the contributions of pro-German brewery interests in politics could be brought to public gaze. Possibly men in both parties will be hit. Perchance some of them may be high in public estimation. It matters not who will be helped or who will be hurt, nor whether this party or that party suffers in public estimation. If there is rottenness, let the sunlight in; for the longer the rottenness is covered up the greater the menace to the healthful life of the nation.

FALSE TEACHINGS.

MR. C. W. HENDRICK, Assistant Ordnance Inspector, at Dayton, O., in a letter to the MANUFACTURERS RECORD calls attention to some statements made in a public address by H. D. Dickson, general secretary of the Y. M. C. A., who was reported in the local papers as having "made a strong appeal for a stifling of all hatred for the Germans." Mr. Hendrick writes that these remarks "smacked strongly of German propaganda" and aroused his indignation.

It is altogether possible that many weak-minded men who do not grasp the meaning of this war will preach a doctrine false as the father of lies, that we are commanded to love the Germans and Germany because we are taught to love our enemies. He who misinterprets the teachings of Christ in such a way as to seek to create the impression that we must love the murderer and the outrager and the mangler of children is teaching what we are sure Christ Himself never taught and never authorized His disciples to teach.

Hell Will Be Busy Trying to Save Its Allies, Germany and Her Allies, from Punishment

United States Senate,
Washington.
Miles Poindexter, Chairman,
Committee on Indian Depredations.

September 28.

Editor Manufacturers Record:

Dear Sir—I read this morning in the Post your letter urging that the influence of this country be thrown against any premature or compromise peace with Bulgaria. I have not the article before me at this moment, but recollect clearly the substance of it, and hasten to congratulate you upon your promptness and soundness in giving every possible publicity to this view. The greatest menace confronting the United States and the Allies now is not from any military source, but is the danger of a weak and compromise peace. The acceptance of anything short of absolute surrender of Germany and all of her allies would be one of those blunders which are worse than crimes, and would be a fearful waste of the lives and treasure which the Allies have expended in this war.

With kind regards,

Very truly yours,

MILES POINDEXTER.

P. S.—The situation brings to mind the unwise policy of this Government in not having declared war against all of the allies of Germany. The notion that we should wage war against Germany and not against her allies, whose soldiers are fighting against us on both the Eastern and Western fronts, is so illogical that it is bound to lead to embarrassing situations and cripple our activities in the final adjustments at the conclusion of the war.

M. P.

The letter to which Mr. Poindexter thus so strongly refers was a cablegram which the editor of the MANUFACTURERS RECORD felt justified in sending to the London Times on September 27. It was as follows:

"While the United States is not technically at war with Bulgaria, its people are at heart at war with Bulgaria and every other enemy of our European Allies. From all parts of this country we are hearing of an overwhelming sentiment that there should be no peace parley of any kind with Germany or any of its allies until there has been an unconditional surrender of the armies and navies of Germany and all of its allies. Civilization cannot permit an armistice or peace parley with assassins. The universal thought in America of every honest-hearted man and woman is for unconditional surrender by the criminals and adequate punishment afterwards. America is whole-souledly in this war to a finish."

This cable and some further comments upon the situation were sent out from Baltimore and rather widely published in the daily papers.

Our position has been that we should be at war technically as well as in reality with Bulgaria and Turkey. It seems to us to be a very grave mistake for this country to have permitted the Minister from Bulgaria to remain in Washington while the troops of Bulgaria were fighting our Allies and while Bulgarian troops were in the very armies that are fighting our own people, or else Bulgarian armies, by fighting our Allies, were releasing for fighting against us the soldiers of Germany and Austria.

We cannot conceive any diplomatic reason, or any reason in ordinary common sense, which has permitted the Bulgarian Minister to remain in Washington and which has kept this country from declaring war against Turkey and Bulgaria. They have been two of the most unscrupulous powers engaged in this war. Bulgaria has been almost as vile as Turkey. Bulgaria has been without regard to any honor or integrity. It has cared not for the right, and it would just as lief fight on the side of the Allies as on the side of Germany if it were sure the Allies were going to win. Turkey, the murderer of a million or more Armenian Christians, the most atrocious nation except Germany which the world has known, is fighting to the limit of its strength against our Allies, and yet we are at peace technically with both Turkey and Bulgaria.

We have no right to stand in such a position. It necessarily, as Senator Poindexter says, raises questions which must be embarrassing and must cripple our activities in the final adjustments at the conclusion of the war.

By what right at that time will we be able to say that Turkish power should be banished from Europe, or that Bulgaria and Turkey should share in the burden of paying the fearful cost of the war?

We are not at war with them. What right, there-

fore, will we have to sit at the peace table and help to dictate terms by which they shall bear their full share of punishment? Were we at war with them, as we should be, this nation could have said to the Allies we believe that there should be no acceptance of any terms of peace from Bulgaria or from Turkey except unconditional surrender, with the certainty of punishment for their crimes. But what right has America to say that when it is not at war with Bulgaria and Turkey?

It was for this reason that the MANUFACTURERS RECORD, knowing the sentiment of the people of this country, cabled to the London Times its expression of opinion in regard to this situation.

We are glad to have Senator Poindexter's wholly voluntary commendation of the position taken. From many others commendation equally as strong has come, and it is gratifying that throughout the country there is growing up a determination that Germany and all of its allies shall be made to unconditionally surrender, and that the flags of America and our Allies shall float in triumph over the capitals of these criminal countries before there can be any terms of peace discussed.

We fully agree with Senator Poindexter that the greatest menace of the world is the tremendous effort that will be made to bring about "a weak peace, a peace of compromise."

Every power of hell and earth which can be controlled by Germany will be used to produce such a peace, and we may rest assured that hell will be very active in the campaign, for hell can ask no greater achievement than an inconclusive peace, or one which leaves Germany and its criminals unpunished.

Hell knows that this would mean the continuation of hell on earth and another war in the not distant future which would surpass this war.

UNCONDITIONAL SURRENDER is the only term which should ever be used in connection with peace, and with the definite determination that every criminal leader in this great conflict shall on the gallows pay with his life the penalty of his crimes, and that the nations guilty of bringing this war upon the world shall be made to pay the full cost to the Allies. Nothing else would satisfy justice. Anything else would be a blot upon civilization for centuries to come.

WHERE WALNUT AND HICKORY ARE SYNONYMOUS TERMS.

IN a letter from a leading business man of New England attention is called to the fact that in our issue of September 19 there was an article headed "Plant Walnut Trees," and on this our correspondent writes:

"The reading matter is all right in a general way, but unfortunately walnut means one thing in one part of the country and another in another, and in the northeastern part of the country hickory is what is generally termed walnut, and the nuts themselves on the market known as walnuts are from the hickory tree. Commercially, the gunstock lumber is known as black walnut rather than walnut, and I think with the explanation another item to clarify the matter might be worth while. Based upon the same kind of information about a month ago I knew a party who had some 200 cords of hickory who has been told that the Government Arsenal at Springfield would probably buy it for gunstocks, but as a matter of fact hickory would be as unsuitable for gunstocks as anything that might be imagined. Hickory is very much heavier than black walnut, and would throw the gun entirely out of balance; also, it would warp and has other troubles. Black walnut, on the other hand, is a wood that does not change in shape and seems to be specially designed for gunstocks."

We have never before heard that there was any part of the country in which walnut and hickory were interchangeable terms. We were under the impression that walnut was walnut all over America. But since hickory is, according to our New England friend, sometimes called walnut, we are glad to emphasize the fact in order to avoid any mistake on the part of those who think of any other tree when the term walnut is used.

HOW THE ACT OF THE NEW YORK TIMES CRYSTALLIZED THE NATION'S DETERMINATION TO FIGHT UNTIL GERMANY UNCONDITIONALLY SURRENDERS.

WHEN the New York Times in the view of millions of people in this country and in Europe betrayed civilization by demanding a peace conference with Austria it not only struck to the extent of its ability a deadly blow at honor and civilization, but it did an almost irreparable injury to the race to which its chief owner belongs—the Hebrews—for Mr. Ochs is, as is well known, a Hebrew.

In reversing the position the Times had persistently taken for four years and crying peace when there was no peace the Times created throughout the civilized world an impression that back of its change there must have been some sinister influence at work. Instantly the thought of many people leaped to the conclusion that in some way some of the great Jewish banking influences of the world had converted the Times from the truth which it had so unceasingly preached, in an effort to bring about peace in order that these international banking houses might continue to dominate the finances of central Europe and be saved from the losses which they will inevitably have to face if Germany is compelled to assume the entire cost of the war incurred by the Allies, and in connection therewith all of the bonds issued by Germany for carrying on the war be confiscated toward the payment of this indemnity.

It can readily be understood that some of the great banking houses of the world will move not Heaven and earth, but Hell and earth to bring about a peace without punishment and without requiring Germany to pay the indebtedness incurred by the Allies in suppressing its criminal work. Every influence which great banking houses of Germany, those dominated by the Government, and other international banking houses, identified in one way or another with financial operations in Germany and Austria and Turkey, will be put forth in behalf of a premature peace and a peace without punishment. These bankers realize that if America and our Allies force this war to a conclusion and to the unconditional surrender of Germany, much of their vast financial strength, which has been given to the upholding of Germany in this war, will be forever destroyed. Every banking house in central Europe which can influence the financial interests of neutral countries, or which can bring to bear pressure upon financial interests in the countries engaged in war with Germany, will put forth to the last ounce of their strength every effort to bring the financial forces of the world to their side in behalf of an unpunished Germany. It is not altogether impossible but what these influences may even reach out to America. It was for this reason that the MANUFACTURERS RECORD persistently insisted that Paul Warburg should not be a member of the Federal Reserve Board. Is it for a moment conceivable that when the question comes before the peace conference of the confiscation of every dollar of Germany's war bonds toward paying the Allies' war cost Paul Warburg would be absolutely and unequivocally on the side of the Allies, against his native country and his brother's great German banking-house, so largely identified with Germany's war loans and with Germany's whole financial interests? Mr. Warburg should never have been on the Federal Reserve Board. It is well that he is no longer on it.

We are not now simply fighting the German Government and the German people, for henceforth we shall have to fight the desperate efforts of the banking and financial interests in Germany and Austria, who are exerting their utmost power upon banking houses in all neutral countries, and doubtless even in many of the allied countries of Europe and America as well. This thought had not been crystallized until the action of the Times forced the people of America to believe that something had happened in the office of the New York Times to change that paper from a vigorous, aggressive upholder of the truth to a weak, spineless advocate of a peace conference with a nation of assassins.

We trust that the Times has absolutely a clean bill of health and that not a single influence from

any of these sources was ever brought to bear upon its owners to change their views. Nevertheless, even if the Times be given credit for unsullied patriotism, and in view of its splendid work for the last four years no one would more gladly pay this tribute to it than the MANUFACTURERS RECORD, it has sown the seed of discord, of criticism and of fear that adverse influences are at work in the land, and it has made millions of people hot headedly criticize the Hebrew race. There is unbounded loyalty and patriotism among the Jews of America. They are numbered among the foremost patriots of the country. They are giving their sons to the battle and their whole-hearted co-operation to the Government. They rightly have a grudge against the Times because one of their race, through a fearful blunder sowed the seeds of distrust in the hearts of many people. We insist that the Jewish people should not be held responsible for Mr. Ochs' great blunder and Jewish financial influences should not be singled out for condemnation any more than the condemnation given to all of the banking-houses in Central Europe, who are using their utmost power and influence to sap the moral stamina of America and the Allies and to serve Germany and its criminal partners in order to save their own individual fortunes. Nevertheless, the Times in what the world regards as a betrayal of civilization weakened the confidence of millions of people in the race to which Mr. Ochs belongs and he thus betrayed his own people, and from now on every great Jewish banking-house will be under more or less suspicion, and those of large German connections will be doubly so, because of the action of the Times. The Times must bear the blame for having created this suspicion.

And yet, perhaps, Mr. Ochs in betraying civilization, as judged by the views of millions of people, did civilization an immense service, for he awakened to vibrant determination the latent thought of America, that no power of politics or finance shall bring about an inconclusive peace, or any peace, not based on the destruction of Germanism. He awakened the nation to the tremendous menace of not being on guard at every point from which its war determination can be attacked by supposed friend or foe. In this way he did more to crystallize the sentiment of the country to fight until Germany has unconditionally surrendered, than he could ever have done by the most untiring advocacy of a fight to the finish.

HOPE IN RUSSIA.

NOT all Russians have bowed the knee to the Baul of Germanism. There is a wonderful religious awakening going on in Russia, for amid the agonies and horrors let loose on that country by Germany and its traitorous Bolsheviks, men everywhere are coming to turn unto God for help. The London Times publishes a story of unusual interest on this subject, in the course of which it says:

"Another circumstance has supervened in Russia. The sufferings of the people, superadded to their political immaturity, have led them to return for light and guidance to their church. They had forsaken its spiritual ministrations during the early days of the revolution. Primitive instincts have left them an easy prey to the wildest excesses. These same instincts brought them back to the altar of faith. At the present time the churches in Russia are overcrowded. Thousands of people follow the processions bearing sacred ikons through the streets. The churches have become the centres of anti-Bolshevik conspiracies. A Bolshevik dare not raise his voice within their sacred portals.

"The only influential party in Russia at the present moment is the church organization. At its head stand the Patriarch Tikhon. He has formed a Ruling Council composed of Prince Troubetskoi, of the Moscow Conservative leader Samarin, and of a leading Moscow merchant named Kouznetsoff.

"As an instance of the great strength and importance of the church I may cite the following fact: At Baku the Rev. Father Katchanovsky, arch-priest of the Cathedral, in the course of a sermon described the Bolsheviks as 'an emanation of hell,' 'a pack of German dachshunds.' For these expressions he was arrested in his home at night, by order of the local Soviet, and imprisoned. On the following day a crowd of 10,000 of his parishioners—men, women and children—stormed the prison and released him. He was then carried in triumph through the streets of the city."

Highway Needs of the Country Justify Organization of a National Government of a Highway Department Highway Administration With Power to Do Things.

THE vital relation of railroads to war and to peace in the handling of war materials and of the products of the farms and factories of the country was promptly recognized by the Government, and the Railroad Administration was brought into existence, with men in charge whose every thought by day and by night is concentrated upon the expansion of railroad facilities. Whatever is needed in the way of money, management or materials for railroad work is immediately brought by the forceful power of the Railroad Administration to the Government and to all industries upon which railroads depend for materials.

Second only to railroads in importance, and in some respects surpassing railroads, are the highways of the country. Without highways there could be no railroads, or no railroad traffic worthy of the name, and, indeed, no civilization. Without highways there would have been a complete collapse of all transportation in the country, for the Government has found it necessary to turn to the highways for motor-truck transportation on an enormous scale, and without motor trucks and automobiles it would be impossible for us to be engaged in this way with any hope of success.

Vital to every interest of the country are the highways, ranking probably hardly second, but side by side with the railroads themselves as factors in civilization and in our ability to win the war. But the Government has regarded highways as though they were but a side issue of comparatively little importance. One of the first moves made was to cut out the transportation of materials for the building of highways, and from that date to this the highway work has been banded back and forth from one bureau or one department to another until it has been in chaos, and this chaos reflects seriously upon the wisdom and intelligence of the entire Government which permits it.

A small group of men in Washington now sit in judgment upon every highway enterprise in the country and say whether it shall be built or remain unbuilt. It is humanly impossible for a few men sitting in Washington to fully decide which highways are more important in a State, which ones should be built and which ones should not be built during war times. Co-ordination between State highway force and the Washington force has not counted for much, because there has been no organization in Washington akin to the Railroad Administration or to the Fuel Administration, which could and would do the things necessary to carry out the building of highways that are absolutely essential.

The importance of the whole highway proposition demands a very much broader treatment on the part of the Government than it has yet received.

Transportation by highways is not a small and niggardly issue which can be laid aside indefinitely or put into the hands of men who are not cognizant of the meaning and the magnitude of the need of highway transportation. The building and maintenance of highways should be regarded as standing on a par with the Railroad Administration work. For this reason there should be created by the Government a Highway Administration or a Highway

Department which would be as independent in operations as is the Railroad Administration, should have no connection whatever with the Agricultural Department or with any other department now existing, for every department is already crowded with things which pertain directly to work.

To put the entire Highway Administration in the Agricultural Department indicates a lack of vision as to the meaning of highways, for highways touch agriculture only in part, and there is no branch of service connected with the Department of Agriculture competent to adequately measure up to the handling of a Highway Administration. It would be unwise to put highways under the Interior Department, but certainly the Interior Department is far more competent to handle highways, and two interests could work together to better advantage and more naturally than highways and Agricultural Department. The Postoffice Department is, through some of its officials, vigorously interested in highways as an essential work in the delivery of mail, but the Postoffice Department is not adequate to the handling of highway administration.

Back and forth from one department to another, from one interest to another, highways are kicked about like a football. Imagine, for an instance, the chaos that would exist if the railroads were treated in the same way, and yet the highways deserve recognition on the part of the Government and of the entire nation equally as great as the recognition given to railroads.

We cannot carry on the business of this country; we cannot market its foodstuffs, we cannot maintain on the farm the people who produce foodstuffs, we cannot handle the enormous expansion of freight which is being thrown upon motor trucks with intelligent management of the entire highway system of the country. It would be a serious mistake for the Government any longer to permit the present chaos to last. President Wilson could very well under his authority establish a Highway Department or a Highway Administration which would have exclusive control during war times of the highway system of the country, and men should be put in charge of this Highway Administration who know the meaning of highways, who are able to develop them, and who could handle that work intelligently and as aggressively as the Railroad Administration is handling the railroad situation.

No non-progressive man, no lame ducks in politics should be appointed, but the men selected for this work should be recognized nationally for their ability to do things vigorously, aggressively and with eyes singled to the national welfare. It may be difficult to find such men, but doubtless they can be found, and until they are found and put in charge of every detail of highway improvement we shall continue to see our highways retrograding in efficiency, and we shall sooner or later see transportation by motor trucks, which is being strongly urged by various departments of the Government, broken down at a crucial time when expansion is needed.

On to Berlin and Unconditional Surrender should be our only answer to peace offers.

Potash As It Relates to Agriculture and Our Independence of Germany's Potash Monopoly.

IN a letter to President Wilson the editor of the MANUFACTURERS RECORD recently pointed out certain phases of the potash situation which immediately attracted national attention. The letter was referred to Mr. Baruch, chairman of the War Industries Board, and by him was given prompt attention. Some of the points raised in that letter were to the effect that unless we develop an abundant potash supply for this country we would be practically at the mercy of Germany's world monopoly of potash, and it is this monopoly which Germany is expecting to use as a club over America and other countries when peace terms are finally under discussion.

Germany believes that in its potash monopoly it can dominate peace terms and can say what countries in the world shall agriculturally prosper and what shall agriculturally die. That has been the boast of some of its leaders.

President Wilson's attention was called to this feature of the situation, and to the fact that we can produce potash sufficient for our needs if the Government will actively co-operate in the production of by-product potash from cement and iron plants, and in every other way in which an adequate supply can be obtained. The question is one vital to every interest of the nation, for increased agricultural output is essential to the nation's life. The steadily rising cost of food, due in large measure to decreased output as compared with population, means an ever-expanding cost of food if we cannot increase our output.

It would be folly to undertake to belittle the need of potash. One of the leaders in the fertilizer industry of the country has recently undertaken to do this as though in making a movement of this kind he was helping this nation as against Germany's potash claims. That is an extremely weak position. We need potash and we need it in large quantities, and any effort of fertilizer manufacturers to decry the use of potash would indicate either a very short-sighted policy, or one which might be pro-German instead of anti-German in its effect. If any fertilizer manufacturers could convince the country that we did not need a great amount of potash, they would by that very fact discourage the production of potash in this country and leave us at the end of the war without a potash industry and dependent upon Germany. This phase of the situation must be carefully guarded, because it is generally believed that several of the large fertilizer companies of this country have heavy investments in German potash interests, or are in other ways identified with German influences. It is, of course, well known that one large fertilizer company was prior to the war the owner of a great potash mine in Germany, and it is thought that another company was before the war more or less identified with certain influences in Germany. We must, therefore, safeguard the country against the possibility of any interests discouraging the use of potash, for to do so would be merely to delay and possibly prevent the development of potash making in this country adequate to our needs.

There are some able men familiar with the situation who believe that pro-German influences are at work even in Washington to prevent the development of the potash industry in America. In view of the fact that the devil himself does not work in more underhand and secret and devious ways to carry on his wickedness than the German prop-

aganda, we need not be surprised if the suspicion should come to prove to be correct that pro-Germans will attempt to prevent potash development in this country.

Without potash produced on a large scale we cannot adequately develop our agriculture; and without potash produced in America sufficient for our needs, making us entirely independent of German potash, we could never be free from Germany's power to crush our agriculture at any moment. We must, therefore, develop the potash industry here to take care of the whole situation. It is entirely feasible. It can save our agriculture, and it can save us from being bulldozed or clubbed by German and German financial interests back of the potash monopoly.

We fully agree with a letter received from a leading American chemist, who, in discussing the potash situation and referring to the conditions which might prevail after the war, requiring heavy import of German potash, unless at present we develop a potash industry, he reverently says, "May God forbid the unrestricted imports of German potash after the war." To that prayer every honest-hearted man in America should say Amen. His letter discusses the whole situation so clearly that though it was a personal letter and not one intended for publication, the privilege of using it has been given, and, therefore, we are permitted to publish it without the name of the writer. The letter is as follows:

I attended the symposium on potash at the Chemical Exposition yesterday afternoon, at which an interesting meeting was held, and have followed closely the strong articles you have written on the subject. There are several points which do not seem to me to have been sufficiently brought out, even if they have been touched on, and which are worth careful consideration.

The first is that we can absolutely supply all our needs, and can continue to supply all our needs, from domestic sources. It is merely a question of development. If there is allowed to be any question on this point the fertilizer manufacturers will not advocate the use of potash, the farmer will try to get along without it and policies will be entered into and laws will be framed on the assumption that only a limited amount can be gotten from domestic sources and the rest must come from Germany. We cannot state too often and too emphatically that with proper development we can entirely supply our own needs.

The next point which naturally arises is the question of price. In regard to this there seems to be much confusion. The common practice is to compare the present price of fertilizer potash salts with the price of the same salts before the breaking out of the European war, forgetting entirely the enormous increase in the price of the other domestic products, which is largely justified by the changed operating conditions. If the potash industry had been a well-established one in this country before the war, the market price might well be doubled owing to operating conditions, and in comparison with cotton, for instance, might be threefold. As a matter of fact, the potash industry started from nothing, but is producing from one-fourth to one-fifth of what was consumed before the war.

When labor is scarce and the price of the product is high is the time of all others to use fertilizers, and the most active and most intelligent farmers are using the potash which is produced and are glad to get it at the price they have to pay, but there is not enough to go around.

Without venturing, offhand, to make specific suggestions as to how it shall be done, it appears that if the action of the Government were to result in greater development it would not only produce the potash which is needed for larger crops, but also and inevitably reduce the cost of such material to the farmer.

If there were unrestricted importations of German potash after the war (which God forbid!), it would be most reasonable that the price would be very much higher, partly on account of operating conditions, freight rates, etc., but partly because Germany expects her potash supplies to help pay the cost of the war.

There is no question that if there is unrestricted importation of German potash, Germany will see to it that the American farmer cries for potash.

There is probably nothing which would insure so certainly the obtaining of German potash at a low price as the development of an industry here which would be strong enough to be in active competition with

the foreign supply and not concentrated into so few hands that the local producers could be bought out.

Any action, therefore, looking to the more prompt development of the domestic potash supply must inure to the benefit of the cotton producers and other farmers in giving them what they need for the larger production so badly required and in ultimately and permanently reducing the price they will have to pay for potash.

These facts may well justify action, yet in my judgment they are subordinate to the war question or political viewpoint as you have so clearly brought out. If we can show the Germans that we are, we can, or that we mean to be independent of them in this particular it will be a powerful blow against their morale, which in one way or another will be worth millions of dollars to us, and of untold value in reducing human sacrifice.

I trust very much you will continue to bring these thoughts forward.

To meet this situation the nation must act promptly and on a broad and comprehensive plan.

TO PROMOTE GOOD FEELING WITH ENGLAND.

A VERY timely and interesting suggestion to maintain and promote the good feeling which has been established between the United States and England as a result of the war is made by Michael Dempsey of Miami, Fla., a native of Ireland, and who proudly boasts of being "a pure-blooded Celt," but nevertheless a warm admirer of the good qualities of the Anglo-Saxon. Mr. Dempsey's idea is that the production of modern English plays, by English actors and actresses, in the various centers in this country where training camps are situated, for the entertainment of the men in khaki will accomplish much in the way of making them acquainted with English character and its ideals and customs, so that they will not be complete strangers to the Englishmen whom they will meet as allies on the battlefields in Europe.

In support of this plan Mr. Dempsey tells of how, in co-operation with the rector of the Episcopal church at Miami, he produced for the entertainment of officers and men in the military service of the United States who are now being trained there a very English play by a company of amateurs (with one exception, a professional actress), and that the performance was a noteworthy success, the audience being quick to understand the English witticisms and the humorous situations in the play. Since then he has been asked to give another such performance, in which his long experience with theatrical affairs in New York and London could again be utilized for the education of our men concerning the social atmosphere they will find among the English "over there." His idea is to produce only clean, humorous and wholesome dramas, accurate in their representation of life in England.

Mr. Dempsey's suggestion is admirable. The young men composing our military forces require good, healthful entertainment, and there could be hardly anything more suitable for them than the production of the highest type of modern play by good artists (no stars, he says), which is doubtless a wise thought, this producing a smoothly working stock company for the semi-educational work contemplated. His further mention of the possibility of forming companies of American artists in England to produce good American plays for a similarly educational work before English audiences is equally excellent. He believes that the expenses of the companies would be readily paid out of the receipts, or, if there should be a deficit, it would be so small that it might be ignored in view of the work accomplished.

Mr. Dempsey is too good an Irishman not to perceive, and to remark in the course of his argument, that this promotion of good feeling between America and England would have influence in smoothing out the political difficulties between his native land and the British Government, although he strongly repudiates the course of those among his countrymen who have given encouragement to German wiles to seduce Ireland from her natural position as part of the British Empire.

A STRIKING ILLUSTRATION OF RAILROAD COST EXPANSION.

THE ninety-second annual report of the Baltimore & Ohio Railroad Co., which covers the year 1917 and is just issued, is more than ordinarily interesting because it is typical of the difficulties met by the administration of a standard trunk line since the war began, including congestion of traffic, increased wages to employees, increased costs for all materials and equipment bought, besides the difficulties of obtaining them, not to mention other envionring matters inclining to obstruct progress and to cause loss.

The railway operating revenue of the system for the year was over \$133,600,000, an increase of more than \$11,800,000 as compared with the preceding year, but railway operating expenses were over \$103,000,000, an increase of more than \$15,200,000, leaving the net revenue from railway operations something more than \$30,500,000, a decrease of over \$3,400,000. Although the increase in operating revenues was 9.7 per cent., the increase in operating expenses was 17.37 per cent., and the decrease in net was 10.07 per cent. Operating cost took 77.11 cents out of every dollar received, while the year before only 72.07 cents were taken. Transportation expenses alone, which include the wages of trainmen and the cost of coal, equaled 42.34 per cent. of the operating revenue, while in the year preceding they equaled only 34.78 per cent. of the same. The revenue from freight was more than \$102,300,000, constituting more than three-quarters of the total operating revenues.

Although the total tonnage hauled decreased slightly, there was an increase in the average distance each ton was hauled, so that the revenue-ton mileage was 17,163,578.902, an increase of 158,875.071 ton miles, making a traffic density of 3,633,372 tons per mile of road, an increase of 24.541 tons moved one mile for each mile of road. The revenue freight-train load increased. Average earnings per ton mile were 5.96 mills, an increase of .34 of a mill over the preceding year.

President Daniel Willard gives a review of what the railroad has done during the last eight years in the way of improvements, remarking that, in view of the Government having taken over the system, it seems appropriate to do so, this period being selected because it was in 1910 that advancing costs of operation began to bear hard upon railroads and caused them to urge increases in their rates charged for transportation.

Thus there was expended from January 1, 1910, to December 31, 1917, on the Baltimore & Ohio system \$139,000,000 for additions, betterments, extensions and new equipment. This included the purchase of 813 heavy locomotives and the retirement of 366 obsolete locomotives, the net increase in tractive capacity of the company's motive power being 65½ per cent. for the period; also the purchase of 44,641 freight cars of either all-steel or semi-steel construction and the retirement of 16,961 freight cars unfit for modern service, the net increase in carrying capacity being very nearly 35 per cent. Other cars were rebuilt and brought up to date, so that at the beginning of 1918 93 per cent. of the freight cars were either all steel or had steel underframes or center sills, and were adapted for present service. There were also bought 400 passenger-train cars of all-steel construction, while many wooden cars were strengthened by means of steel ends and center sills. About 74 per cent. of the passengers are now carried in all-steel cars. New electric motors for the Baltimore tunnel, new tugboats and other floating equipment were acquired. The line from Philadelphia to Chicago is now double track all the way, with 82 per cent. of it laid with 100-pound steel rails, none less than 90 pounds being used in the rest of the track. About 72 per cent. is stone ballasted. All trains are operated under block signals, over 600 miles being electric, while more electric signals are now being installed.

The carrying capacity of the line from the West Virginia and Connellsville regions eastward has been increased fully 40 per cent. by the construction of two long double-track tunnels (one on the Pittsburgh and the other on the Cincinnati route) over the Allegheny Mountains, also the Magnolia cut-off, which gives four tracks for 13 miles where ton-

nage density is greatest and an eastbound third track over the mountains on the western end of the Cumberland division. New passing tracks and terminal tracks to the amount of 330 miles were built.

During the eight-year period the commercial development department of the company aided in establishing 2443 new industries along the road, this not including the new coal developments made, and 232 miles of new side tracks were built to serve them.

Thus the cumulative effect of the improvements and the development is shown in the record of 18,053,294,172 ton miles for 1917 (this total including company's material), an increase as compared with the year ended June 30, 1910, of 5,377,811,280 ton miles, or 42 per cent. In the same period the average total freight-train load increased from 466 tons to 818 tons, or 75 per cent., so that now 42 per cent. more ton miles are handled, with a 19 per cent. decrease in train miles.

President Willard also says that freight and passenger rates were substantially stationary until 1916, when there was an increase of about 3 per cent. on freight, and in 1917 a further increase of 15 per cent. on about half of the freight traffic handled, but it was effective for only a short part of the year. These increases, it is estimated, added about \$7,000,000 to the gross freight earnings in 1917. He further says that the average wage paid labor in 1917 was fully 40 per cent. higher than in 1910, and that the total wage payments of the company for last year, due to wage advances only, were approximately \$18,000,000 greater than they would have been on the 1910 basis. All material increased greatly in cost, a test of 43 principal items showing an advance of more than 76 per cent., while fuel increased more than 100 per cent., so that the increased operating cost, resulting from higher prices for wages and material applied to the business of 1917, would, as compared with the same business under price conditions of 1910, show an increase of more than \$25,000,000 a year in operating charges.

Concerning the new rates now in effect, Mr. Willard observes that the order issued May 25, 1918, by Director-General McAdoo authorizes new freight rates, apparently meaning an increase of about 25 per cent. on all freight charges and an increase of passenger rates generally to 3 cents a mile, the freight increase being in addition to the full 15 per cent. increase asked by the Eastern railroads in April, 1917. These rates, the report further says, should, when fully in effect, yield additional revenue sufficient to offset the increased basis of costs and to restore the relation formerly existing between gross revenue and net operating income, assuming that wages and prices paid for material remain substantially as at present.

BEER KEG LUMBER FOR BETTER THINGS

FOR the past two or three weeks experts from the Forestry Bureau at Washington have been quietly looking over the situation with reference to the possible elimination in the immediate future of beer kegs as an essential in the conduct of the war.

The anti-saloon legislation in many States and the recent action of Congress has put beer kegs theoretically on the non-essential list. It is understood that it is not the purpose of Government agents to find out how much actual wood may be saved if these beer kegs are no longer manufactured.

It is stated in Washington that many millions of feet of lumber can be utilized for purposes more directly concerned with the winning of the war if beer kegs are relegated to oblivion right away.

HELPING AMERICANS IN EUROPE.

EDWARD MARSHALL, one of the most widely-known American newspaper men, who for some years has been living in England as head of the Edward Marshall Syndicate, in a letter to the MANUFACTURERS RECORD, says:

"I do not know you personally, but I shall rise up and shout that you are turning out a very wonderful war publication. You are the kind of American and yours the kind of Americanism that does good to the soul of the war-weary man from the United States who has been too long upon this side without having a glimpse of his own country"

HIGHWAYS WILL MEASURE EVERY COMMUNITY'S CIVILIZATION.

AT the meeting in Rockingham, N. C., last week in the interest of a broad national road to be known as the Charlotte-to-Wilmington Military Highway, Lieutenant L. H. Ball, who has been much active service on the front, suggested that there be made a memorial road to the memory of the soldiers from the communities along the line who died for freedom in France. To this suggestion he added that the people living along the route should plant out trees beside the highway to the memory of the soldiers of their individual loved ones who gave their lives for the cause of liberty.

Lieutenant Ball called attention to the fact that France is already proposing to build a great memorial highway along the entire line of the western front, over which tourists for generations to come will travel. The suggestion is a good one. The building of great highways and the beautifying of them by shade trees would prove a memorial worthy of the soldiers who die in France.

A highway well built, beautified by shade trees and well maintained is an evidence of civilization, and it is a tremendous aid in the advancement of educational and religious activities of all kinds.

He who builds a highway permanent, and makes it a thing of beauty as well as a thing of usefulness, is rendering a great service to the civilization of today, and is making certain a higher civilization through the centuries to come.

North Carolina is doing well in agitating for the building of a national or military highway from the Piedmont region to the coast at Wilmington. If this plan is carried through in the way suggested by Lieutenant Ball it will set an example worthy to be followed by every community in the country.

The highway of the future will measure the standard of civilization and of material progress of every section of the country.

The bad highways will mean retrogression, materially, morally, educationally, religiously, as well as materially. The improved highway will mean the opposite.

We have passed beyond the point where progress materially or educationally, is possible without improved highways, for in the development of the automobile and the motor truck we have reached a stage in human progress which means of necessity advancement for the sections where good roads exist. Indeed, we are at the forks of the road. One side leads to higher civilization, to broader comforts and conveniences, to greater educational and religious work, and to material progress. The other leads to the downward road of ruin.

LET OTHERS DO THE SAME.

THE Rotary Club of Pine Bluff, Ark., on September 24, passed the following resolutions:

"Whereas, President Wilson in his prompt and emphatic refusal to treat with Austria and her murdering ally, Germany, on terms as presented by her, voiced the sentiment of every liberty-loving man and woman in this world!

"Resolved, by the Rotary Club of Pine Bluff, Ark. That we commend him for the stand he has taken on this matter by refusing to deal with these murderers of children and outragers of women until they are ready to acknowledge their crimes and make such amends as is possible to make.

"That we pledge the President our support to the full limit in carrying on this war until the foes of humanity are beaten, until they are taught other nations have rights that must be respected and until Germany and her allies are defeated in their efforts to crush the world.

"Let the watchword be 'ON TO BERLIN!'

"That this resolution be wired to the President."

"WHY THEIR BOYS FIGHT."

MRS. R. F. Woodward of Norfolk, in a letter to the MANUFACTURERS RECORD, writes:

"I think that the MANUFACTURERS RECORD could be posted in all hostess-houses of the different camps, where many visiting mothers and friends might read and better understand 'why' their boys fight. Many there are who do not see and do not care; others frankly discourage and sadden, because they have never been able to get at the truth. It would help some of these sorrowing people to say a proud, even if a tearful 'good-by' to their boys. I am going to send several copies myself so that they can be passed on to the camp at Petersburg."

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NO NATIONAL ALTRUISM MOVED AMERICA INTO THIS WAR.

SOME weeks ago the MANUFACTURERS RECORD rather vigorously criticised a statement made by a warm personal friend, Rev. J. B. Gambrell, D.D., of Texas, in which Dr. Gambrell had made the statement that America is in this war in a spirit of altruism. We pointed out that it was a mistake to claim that we entered the war from any spirit of altruism, for we kept out of the war just as long as we could possibly do so without the certainty of our own destruction. We do not believe it is wise for any leader of public opinion to take the view that we entered this war for altruism; but on this point Dr. Gambrell writes as follows:

"I read with much interest your very vigorous editorial, suggested, seemingly, by my statement that America went into the war in an altruistic spirit. Some one sent me the same editorial detached from the MANUFACTURERS RECORD.

"I have just changed my work. I put down the secretarial work for Texas Baptists and came to the ministry to teach. The change did not allow me time to write you when your article was fresh. But even at this late date I crave the privilege of saying that, with all you say as to our moral obligations to France and to humanity at large, I still hold the view that our people were very much less influenced by those considerations than by a desire to alleviate the distressing situation in Europe. I do not think the masses of American people saw the deep and dangerous implications in the German attitude to the world, but they did feel that they wanted to relieve the situation which had been created by German militarism; the suffering of women and children mightily moved our people. So you will see that I still hold the idea that the altruistic spirit was predominant, and I believe it is predominant even today.

"But whether we went in altruistically or were forced to by an iron logic and fear of our own safety in the future, we are in, and in, as I hope, to stay in until there is a peace constructed on fundamental principles of righteousness.

"I deeply appreciate the noble part you are taking in the struggle. In my place I am trying to put all the heart in it I can. I believe the nobler we can make the struggle, the stronger our people will be in it and for it."

While we do not accept Dr. Gambrell's view that we entered the war from any spirit of altruism, we do know, of course, that tens of thousands of men who volunteered and are now on the battle front individually were moved by altruism; but we were discussing the fact that this great nation held aloof from the war and backed an election campaign on the slogan "He kept us out of war," when we should have had, as the MANUFACTURERS RECORD said at that time, as our slogan, "He led us in the path of duty wherever it might carry us."

The reason why the masses of "American people did not see the deep and dangerous implications" in the German attitude was because religious and political leaders failed to measure up to their responsibility. Surely the ministers of this country, who had for years been acquainted with Germany's atheistic teachings and with the trend of German thought in this country, should have known where Germany's military doctrines, as proclaimed from the universities and by the military leaders, were leading that nation. It was because the great religious and political leaders of the country, with few exceptions, did not from the pulpit and the platform unceasingly warn the nation of the certainty of our becoming involved in the struggle to save civilization that the "masses did not see the deep and dangerous implications."

The sufferings of women and children, Dr. Gambrell says, "mightily moved our people"; but how few pulpits emphasized, Sunday after Sunday, the terrible suffering of these women and children? How many pulpits proclaimed it was our duty to help save them from the hell of German damnation? How many joined in any campaign to alleviate their sufferings?

It is to the everlasting reproach of America that, though carrying the fearful burden of war, England and France contributed ten times as much to alleviate the suffering of Belgium as did America. Our chief contribution to that great cause was Herbert Hoover, who was worth more than all the money we sent.

We repeat what we have said time and again, that in this great world crisis, when the greatest immorality in human history was running rampant, the Church of God lost the greatest opportunity in

1900 years to make itself a dominant power over the hearts and lives of mankind, because it failed to stand out vigorously and unceasingly in denunciation of the criminal acts of Germany and its co-worker, Turkey.

We entered this war from the selfish standpoint of our own salvation from German damnation, and we are false to what history will prove when we take any other position. Altruism of the sublimest character controls many of our heroic soldiers, but no national altruism sent us into war.

A FEW SPECIMENS OF GERMAN ATROCITIES.

AMERICANS have read of the horrors attending the massacre of a million Armenians by the combined forces of Turkey and Germany, led by German officers, but nothing that the people in this country have ever known on the subject adequately pictures the full reality of these horrors.

Let us bear in mind that through the centuries Armenians have to a large extent died for their faith in a risen Christ. Contemplate the horror with which we think of the sacrifice of the Christians under Nero and others, martyred for their faith, then turn from this to the fact that horrors even greater are day by day being enacted practically before our very eyes, and we can see how little are the people of this country aroused to this fearful condition. In the London Times of August 22 appears a statement which fairly makes the blood run cold. It is as follows:

"The Rev. Mr. Dombourajian, an Armenian clergyman, who has reached England from Persia, after undergoing great privations, states that the conditions in Persia were shocking owing to famine. A hundred to 200 persons were dying daily in Teheran, where 40,000 people are at the point of starvation.

"At Baku," said Mr. Dombourajian, "I met the members of my family, who had escaped almost by a miracle from the Turks at Kharput, disguised as Kurds. For days together, they said Armenian men and boys from the towns and villages around Kharput were marched out into the open country and murdered. Bands of Armenians were driven out to trenches dug for the purpose and buried alive. Young brides who refused to live with the Turks were deliberately stripped of their clothing, beaten, kept without water, and exposed in the broiling sun. Professors of the Euphrates College were skinned and pieces of flesh were cut off their bodies. Little children were thrown into cauldrons of boiling water and their mothers were forced to witness their sufferings. In some cases mothers were compelled themselves to place their living children in the boiling water. Along the roads my sister and her family saw hands, feet and heads strewn by the wayside. German officers and soldiers in Kharput, Mush, Bitlis and other places, were themselves often responsible for the horrors committed."

As we read these statements, remember that they are but the confirmation of what our own Minister to Turkey, Hon. Oscar S. Straus, has repeatedly told us and which he emphasized strongly in an address in Philadelphia some months ago, when he said, that it had been left to the Germans to teach Turks new forms of atrocities in the murder of 800,000 Christian Armenians since the beginning of the war.

The London Times also contains a statement issued by the British Ministry of Information, which is very careful not to publish anything that has not been fully verified. Under the heading of "German Savagery," the Times gives the details, with sworn affidavits of some who escaped death, of English prisoners having been deluged with liquid fire. The testimony of these men, which is given in detail from those who survived, is to the effect that German officers carried a liquid fire container on their backs, while other officers armed with rifle and bayonet stood by to make certain of the death of any who escaped. The man with the liquid fire container turned a stream of liquid fire straight down upon the men, who had been captured and who were unarmed. This continued in one case for six or seven minutes. One man said: "When I saw the flame, I immediately dropped down as far as I could and got my face on the ground. The other men were lying in heaps around and partly on me. The men were shrieking and writhing about. I should say that the flame was playing for about a half minute the first time and the second time it reached back to where I was."

Another testified that even upon severely wounded

men liquid fire was squirted. While one officer stood by with a revolver, the other squirted the liquid fire, though all of the men were wounded.

The British Government, having authenticated these statements by sworn testimony, "has caused to be conveyed to the German Government a protest against the offensive treatment in the above statements."

Protest! Has the British Government not yet learned that no protest counts for anything with Germany? Has it not learned that nothing but force, overwhelming force, means anything to these people? Surely, the time has come when England and America and all our Allies should fully understand that force, force to the limit, overwhelming force, is the only thing which the German frame of mind recognizes. Any sign of humanity is accounted by Germany as weakness.

ON TO BERLIN!

DO NOT BE MISLED.

THE Review of Reviews is using as a premium the book entitled "Two Thousand Questions and Answers About the War," notwithstanding the exposure which has recently been made of some of the rotten pro-Germanism in it.

Shocking to the sense of every patriotic American is the question printed in big type on the envelopes which the Review is urging in its circulation campaign, "Did the German Embassy issue a warning to passengers on the Lusitania?" That question printed in big, bold type is for the express purpose of awakening in the mind of the receiver of the envelope some thought as to what was the situation in regard to the Lusitania. The answer is in keeping, and there is no comment whatsoever suggestive of the vile crime of Germany in sinking the Lusitania. Throughout the book there appear other statements which are, to all intents and purpose, in defense of Germany, and are calculated to materially assist the German propaganda in this country.

Notwithstanding these facts and the denunciation of the book in leading newspapers, in Congress, and by the National Security League, the publishers of the Review continue to send out circulars offering the book in connection with subscriptions.

It was but a few weeks ago that we had to vigorously criticize several leading ministers because they were using and commending a pro-German book entitled "Short Rations," which has now been banned by the army from all army camps as among the books unfit to be read, especially by soldiers.

The Review of Reviews deserves the condemnation of all right-thinking Americans until it withdraws its offer of "Two Thousand Questions" as a premium and until it apologizes openly to the country for having used such a publication, and the ministers who sought to uphold "Short Rations" and to commend some of its vicious teachings owe a free and full apology to American people, or else their influence in religious work will certainly be seriously injured.

A SUGGESTION FROM FLORIDA.

FROM Mr. G. L. Beck of Miami Beach, Fla., we have a letter discussing a recent editorial in the MANUFACTURERS RECORD entitled, "Buy Until It Helps, Not Until It Hurts," referring to buying Liberty Bonds and contributions to war activities, such as the Red Cross and the Y. M. C. A.

In referring to this editorial Mr. Beck suggests that there are two sides to the question. One is that in buying Liberty Bonds we "make a solemn acknowledgment of our desire to help our Government" in every way possible and to work for the welfare of the soldiers, but that, on the other hand, there is another way in which it is right to "Buy Until It Hurts," but the hurt is to be the hand of punishment to the full extent of human power and knowledge on Germany, "so that living Devil Kaiser Bill and his associates can be punished to the extreme through our buying of Liberty Bonds."

In buying Liberty Bonds until "it helps" us we buy Liberty Bonds until "it hurts" the Kaiser, and to this Mr. Beck adds the suggestion that we buy Liberty Bonds to the limit of our ability, so that when the news of the oversubscription reaches our men in France there will be something doing now where "over there."

WOMEN MUST ENTER MORE ACTIVELY INTO WAR INDUSTRIES.

HUN propagandists and pro-Germans are at work attempting to deceive America as to the necessity for women workers in the industries. Propaganda is being spread throughout the country to keep women from leaving the quiet and simple life of the homes to take up the more strenuous work in factories and shops, thereby replacing thousands of men called to arms.

The need for women workers will tremendously increase as a result of the new drafts, and unless the response is general the situation in our necessary industries will be acute, even if it is not already so. That the women of America are willing to respond to the call and take men's places goes without saying, but they are being held back by insidious propaganda. For the most part the Hun sympathizers attempt to show that the women of America are not suited to shop work, that their place is in the homes, and that the women of England, France and Italy have succeeded in filling men's places simply because they were more muscular than our women and had always done such heavy work. Again, they say that the manufacturers do not really need women workers to relieve the labor shortage, but would employ them for no other reason than to effect a reduction in wages by paying women workers far lower salaries than men engaged in doing the same work. Meanwhile the shops in many cases are operating at only part the maximum capacity, and necessary products are not being supplied in sufficient quantities. It is a wholesale attempt on the part of the Huns to have us utilize man power to the highest possible degree in turning out munitions and instruments of modern, scientific warfare.

That the propaganda, like all other information given to the world by the Germans, is wholly without foundation and any basis for truth is to put it mildly.

We have been at war little more than a year, yet the mere handful of women now at work—compared with our actual needs—are employed in every branch of war work from the simplest machining operations in shell manufacture to important testing work as engineers of tests in the Ordnance Department. Wherever they have been placed their employers say without hesitation that they have surpassed all expectations. But the matter must not stop here. We are just about to put forth our greatest efforts in the winning of the war. Our industries must not drop behind in production because of women workers. We say women workers advisedly, because men cannot be had; firstly, since the draft is removing thousands of men now engaged in war work; secondly, because the various industrial centers where the majority of munitions work is being undertaken are now so overcrowded that houses are not to be had for persons coming from other localities, hence the women who are already living in these centers give us the only alternative of supplying the demand for labor.

Hence it behooves all true Americans to kill such propaganda at its source and to bring those who attempt to spread it to justice. Speaking early this year in Baltimore at the graduation exercises of the Johns Hopkins University, Prof. Alonzo E. Taylor, professor of physiological chemistry at the University of Pennsylvania and a member of the Food Administration, just then returned from European countries, where he studied food and labor conditions, predicted that if the war was to be won at least 5,000,000 women in America not then engaged in gainful occupations must take their places alongside their sisters of France, England and Italy, in whatever kind of work would make for the success of our war aims. Of the 5,000,000 women necessary to the success of our arms, as predicted by Professor Taylor, at least 1,000,000 must engage in farm work, not necessarily as laborers in the fields, but in the no less important pursuit of canning and otherwise conserving the products that will be grown. Specially was Professor Taylor confident that our women would prove just as capable

and helpful in the industries as had the women in the other Allied countries. But for the women of France and England, who nobly responded to fill places made vacant by their valiant men, peace would have come long ago, said Professor Taylor, but it would have been the peace of a victorious Germany and the hopeless defeat of the Allies.

QUESTION OF VERACITY BETWEEN KITCHIN AND LAWYER JESSUP.

Henry Wynans Jessup,
Counselor-at-Law,
55 Liberty Street.

New York City, September 26.

Editor Manufacturers Record:

My Dear Sir—Upon my return to town I find a clipping from your journal containing a characterization of my letter of August 30 to the New York Tribune as "absolutely false" and "absolutely without foundation."

You quote Mr. Kitchen as writing you: "Not one word I have ever uttered in or out of Congress would indicate the least sectional bias or feeling."

Common fairness will, I trust, permit me a rejoinder. Mr. Kitchen well knows that he said: "This is the North's war, and the North should pay for it." He knows in what place and in whose library he said it. The remark was published at the time. My letter was in error, as printed, in naming Boston as the place.

A cotton man in South Carolina wrote me in comment on my letter in the Tribune in which I asked Southern men to repudiate the sentiment: "You evidently do not read the Southern papers, or you would have seen that Mr. Kitchen's sentiment was repudiated by them at the time."

Moreover, in the Sixty-second Congress, Mr. Kitchen having the floor on a discussion of the cotton schedule, when asked whether the proposed schedule would not tend to force the cotton mills to the South, replied "that was just the intention of the committee."

That this statement was deemed "sectional" is inferable from the fact that the Republicans had it printed in quotation marks and used as a campaign poster, I believe in New England, either in 1910 or 1911.

It is this spirit I condemned in my Tribune letter, and I am very glad it is nowadays so generally repudiated in the South.

Respectfully,

HENRY W. JESSUP.

Mr. Jessup's letter is called forth by the publication in the MANUFACTURERS RECORD of a telegram from Congressman Kitchen. In the New York Tribune of August 30 Mr. Jessup had a letter suggesting a tax on cotton, and in the course of his statement he said that Congressman Kitchen had made in Boston a statement which "was to the effect that this was the North's war and the North should pay for it." The MANUFACTURERS RECORD asked Mr. Kitchen by wire if he had ever made such a statement, and his reply, which we promptly published, was as follows:

"Wire just received. Have not seen New York Tribune, but what you quote from it is absolutely false—not a shadow of foundation for it. I have never expressed nor entertained such a sentiment. Not one word I have ever uttered in or out of Congress would indicate the least sectional bias or feeling. I am confident that my colleagues from the North, both Republicans and Democrats, will say that I am far removed from such bias and feeling, and would be the last man in Congress to give utterance to the statement attributed to me in the New York Tribune."

Thus the issue as to veracity is squarely raised between Mr. Jessup and Congressman Kitchen. It is not between the MANUFACTURERS RECORD and Mr. Jessup, but between Mr. Jessup and Mr. Kitchen.

"And now lay on, MacDuff.

And damned be he who first cries, Hold! enough!"

WILL WE AT HOME STAND BY THOSE OVER THERE?

G. C. Branham of H. H. Branham Company,
Austin, Tex., September 23.

Dear Sir:

I have just read your letter to Senator Lodge in re indemnity that should be exacted from the Huns when the war is won, and have showed it to a number of my friends.

We all wish there were 5000 publishers in the United States that would copy this, so it would be spread broadcast over the country, and every man, woman and child have an opportunity to read it. The writer is over draft age, but has a number of relatives "over there," as well as friends, and from their letters I gather that if the people at home will stamp out traitors at home they will attend to the Huns over there.

Yours very truly,

G. C. BRANHAM,
Austin, Tex.

HIGHWAY IMPROVEMENTS DURING OCTOBER.

ACCORDING to an announcement sent out by L. W. Page, chairman United States Highway Council, the Priority Commissioner has authorized the continuation from September 26 of all street pavement and roadway construction now under way until November 1, and those supplying materials are authorized to furnish them during the same period. All work under contract or construction that cannot be completed before November 1 will require permits from the United States Highways Council through the various State highway departments, and applications for these should be made promptly. It is also announced that no new contracts for maintenance of highways should be entered into prior or subsequent to November 1 without first obtaining a permit.

This announcement seems to indicate that the Government is at last realizing the vital need of providing for essential highway construction, and while this has come somewhat late in the open season when such work can be pushed with the utmost vigor, it will, however, be widely welcomed throughout the country by those sections which urgently need attention to their highways.

For some unknown reason the officials at Washington have failed to recognize the highly important part which the highways of the nation play in our war activities as important auxiliaries and feeders to our rail and water transportation systems. Instead of encouraging the construction and maintenance of essential highways, these have been materially held back that they have not been given a full opportunity to shoulder the fullest portion of transportation that they are capable of handling, and in cases where improved highways have been extensively used, they have been so damaged and deteriorated through excessive use that many of them have been rendered almost useless or can only be repaired at great expense.

It is earnestly hoped that this new ruling means that essential highway work will be allowed to continue without interruption, and that official Washington will recognize the need of authorizing the so that those in charge of highway work can systematically plan and prosecute it to the fullest advantage of the nation's war needs.

WEEDING OUT PRO-GERMAN BOOKS FROM ARMY LIBRARIES.

A FEW months ago a number of American ministers, caught by the chaff and failing to make any true investigation of the stuff they were using, broadly quoted through the country, and in the way put into many religious publications, some of the neurotic matter which had appeared in the interest of Germany in a book entitled "Short Rations," by Madeleine Z. Doty.

The MANUFACTURERS RECORD was the first publication in the country, so far as we know, to expose that book and to criticize the Century Company for having issued it, and at the same time we criticized the ministers for having used such neurotic mawkish sentiment for creating a sentimental feeling for Germany.

The Century Company resented the criticism, and did the ministers, but we are glad to see that the officials of the United States Army have banished that book, in connection with a good many others from all army camps. Army officials are quoted by the New York Tribune as saying that "many of these volumes were the most vicious kind of German propaganda, while others were declared either salacious or morbid and unfit for reading by anybody but more particularly by soldiers."

The attention of the War Department was called by the MANUFACTURERS RECORD to "Short Rations" and we are glad to find that it has been placed among the list of forbidden books. We wonder if the ministers who used and commended it, and the religious papers which printed some of the stuff taken from it, will now recognize that the MANUFACTURERS RECORD was absolutely right in its position, and will now publicly apologize to the country for having defended Miss Doty and her pro-German "Short Rations."

The Balkan Key to the European War.

THE WAR MUST BE WON IN THE EAST AS WELL AS ON THE WESTERN FRONT.*

By DR. WILLIAM B. SMITH, L.D.D., Tulane University, New Orleans.

Since the collapse of Russia and her self-effacement under the traitorous hands of Trotzky and of Lenin, who boasts himself not a Russian, but an International, and willing to ruin Russia in a quixotic attempt to rouse the proletariat elsewhere, since Central Europe has hurled its solid mass upon the Allied ranks in France and Flanders, the Western front has loomed up so gigantically as to blot out almost completely from the eyes and the imagination the far longer battle line of the South and East. From the start, indeed, the idea has prevailed that all other regions of activity were secondary; that only in the West could a decision be reached; that victory there meant victory everywhere. The unhappily influential English "military critic," Colonel Reppington, the most wrongheaded of writers, has lent the full authority of the London Times and Morning Post and his own persistent advocacy to this unfortunate view, which has come to be regarded as thoroughly orthodox. Most of all, it has been reinforced by the recent desperate drives intended to cleave asunder the French and English and then crush each in turn. Had this maneuver succeeded, or the similar attempt to ruin the French army and mask or capture Paris before either England or Russia could enter the field, then, indeed, the decision on land might have been forced, but mark you, a German decision only. Were the Allied forces dissipated in prostrate France, Italy would sink and the Anglo-Saxon would be left alone to rely upon the slow and painful course of naval economic war, whose final issue none could foresee. Happily, however, both these maneuvers have stranded in the Marne.

Moreover, there was a time when the opposite decision was possible in the same quarter. Before Russia tired and cried out "Tavarish" and threw away arms and dropped down in her tracks, inviting the conqueror's heel, before Serbia was depopulated, Rumania betrayed and appropriated, and German dominion, solidified in the Balkans, around the Black Sea and throughout Turkey, even to Aleppo and Damascus, was formidably threatening Lombardy and Venice, while Germany's arms had not yet emerged sensibly beyond her own borders south and east, it seemed not unreasonable that decisive defeat in France or Belgium, throwing the Kaiser back upon the Rhine, might dispose him to peace without annexations or indemnities, but guaranteeing the rights and liberties of the small nations, and therewith European calm, for at least a generation.

Now, however, the situation is entirely changed. The girdle of steel that held it within bounds being shattered from the Baltic to the Adriatic, the military might of Germany has burst forth in ruthless and unrestrained fury; it has laid its hands and stamped its feet upon nation after nation, upon territory after territory; it has practically annexed immense and populous regions, more than doubling the area and population of its empire. Finland, Poland, Courland, Aesthonia, Livonia, Lithuania, Ukraine, Rumania, Bulgaria, Serbia, Turkey and, of course, Austria-Hungary are now in effect all dependencies of Berlin, and fast undergoing thorough "organization" into one huge economic military block, for which Hapsburg and Hohenzollern will produce the kinglets needed. A Germanized mid-Europe has suddenly been crystallized beyond the hopes of Naumann or the most frenzied Pan-German. In the political heavens such a huge mass must speedily draw within its circle such molecules as Norway, Swe-

den, Denmark, Holland, Switzerland, and even Greece, so that this mid-European empire would stretch broad, unbroken, from the Arctic to the Mediterranean, or rather, since Egypt is demanded for Germany's vassal, Turkey, from pole to equator. This is no fancy sketch, but is in largest measure already realized under our own eyes.

Under such conditions, how is it possible to force a favorable decision in the West? Let us suppose our brightest hopes and most fervent prayers are fulfilled; that the resounding blows of the Allied offensive shatter even the Hindenburg line; that the Huns reel back broken and routed to the Rhine. What then? When France and Belgium are cleared of the invader, when even Alsace-Lorraine is rescued from his grasp, what next? Undoubtedly His Holiness or some other pro-German "neutral" will lift up the sacred wand between the combatants, there will be an armistice, and there will be peace; peace that might restore Belgium as a unit, not as two States, a German Flanders and a helplessly independent Wallonia; that might return Alsace-Lorraine to France, according to the pious wish of the good Kaiser Karl—how any half-adequate reparation could be made to either France or Belgium we cannot imagine, but let us suppose the utmost possibilities of restoration exhausted. All that would be well and the inordinate Prussian pride would be somewhat humbled, though not fittingly punished. Italy, too, might be placated and flattered by concessions in the Trentino, and even Britain soothed by surrenders in Palestine and Africa. But how could any such arrangement disturb the accomplished facts in the Balkans and the East? Would it loosen the grip of the German giant on a dozen nationalities? Would it soften or dissolve the enormous military-economic block solidified from Hamburg to Damascus? Assuredly, it would not. The German would emerge from the strife ghastly pale and bleeding at every vein, but still prodigious in strength, his crimson-murderous hands still clutching the booty of his crime. One gem, indeed, Alsace-Lorraine, he would have lost, but the other trophies would be his. When the Teuton can no longer hope to battle down the Allies in the West, we may be sure he will be eager to purchase a free hand in the East and South by surrender of the coveted provinces, which Wilhelm I assured the Empress Eugenie were desired only as a buffer to deaden the return stroke of France.

Would such a proposition be heard by the Allies? I say heard, not accepted; for if heard, if treated as discussible, as the basis of an armistice, it would surely initiate a peace movement whose momentum it would be impossible to withstand. So weary are the nations of war that once the diplomats touch feet beneath the conference table they will not rise until some peace is patched up between them. Such a result would be unavoidable, because, since nearly all the pawns of war are now in the hands of Germany, she would be in position to make one trifling concession after another and so present the deceitful appearance of earnest desire for honorable "peace by agreement," while really retaining all the time the principal prizes of conquest. For years she has been playing all the tricks of the craftiest diplomacy and most unprincipled propaganda to this one end: to disrupt the Allies' resistance, to sow dissension among them, to make separate peace or "peace by arrangement" (*Verstaendigungsfrieden*), while all the military advantages of position are still hers. Hereby she has ruined Russia, dizzied Italy, and even frightened France.

Such is the alarming danger that confronts the Allies continually, the danger of deception by Teuton peace-profession before their ends and aims are in any adequate measure attained. Fortunately, their goal becomes daily more and more unmistakably and clearly defined. Recent revelations, as of Lichnovsky, Muehlton and Thyssen, as well as the demand that France surrender Toul and Verdun at the outbreak of war as pledge of neutrality, are confirmations strong as Holy Writ of Germany's perpetual plotting and boundless

ambition for European hegemony. Equally evident is the unrelaxing grasp of the Pan-Germanists upon the reins of government policy, a grasp that tightens daily even under extreme conditions of internal discomfort throughout the Central Empires. In spite of general suffering and universal mourning (except, of course, in the Kaiser's family, thus far "providentially" protected), the military Junker party was never more firmly entrenched in authority, the opposition was never more powerless and contemptible. The majority Socialists have been completely awed or cajoled; led on by the will-o'-the-wisp of national and racial power and glory, they have rushed madly forward and are now stuck fast and impotent in the morass of pledges to the Government. Only a few feeble and futile voices are raised from time to time in pretense of criticism of unessentials, and these are contemptuously treated as a harmless simulacrum, the mere gibbering ghost of departed freedom. No longer, then, can there be a shadow of doubt as to the purposes of the Central Powers. They aim with the utmost directness and openness at the solidification of all mid-Europe into one huge economic-military block, into a mass entirely irresistible by the free Western States of France and England. Russia meanwhile is shorn of all her most valuable territory and population, dismembered, disintegrated, reduced to impotence and "organized" (to use Ostwald's phrase) wholly in the interest of the Centrals. All the Balkans are already drawn within the sphere of Teuton control, a tariff-union will surely fasten them as satellites in a system whose mass-center is Berlin. Turkey is already such a moon, Talaat, and particularly Enver, with the whole military establishment, are thoroughly committed to German domination. All this is well enough known of nearly every one, but its full significance comes rarely to the front; our thoughts seldom reach so far. Yet this remote Eastern situation is the crux of the whole matter. It is precisely there that the Teutons' ambition centers, there is the nest of their most daring hopes. All the rest will surely be added, they reason; the fruit will ripen and fall of itself into the waiting hand. Doubtless they want Belgium and the mineral regions of Northern France, but these they will grudgingly surrender. Also Holland and Denmark, Sweden and Norway, Switzerland and Northern Italy,

Where'er the German tongue may ring
And songs to God in heaven may sing,

but on all these the more rational at least are willing to wait. The Southeastern solidification is the engine to drag all the rest in its train; of this we may be absolutely sure. It is vouched for by the whole course of Germany's policy and intrigue for the last 20 years, by the whole plan of her military movements since her first defeat on the Marne, by the whole scheme of her recent politico-economic endeavors. The Eastward Urge (*Drang nach Osten*) is the key to Teuton endeavor, and it only can unlock the secrets of Central wiles and diplomacy. It is precisely this immense territorial-economic aggrandizement, and nothing else, that the Kaiser has in mind, and Hindenburg, in their latest promise of a German peace securing the future development of German commerce. They mean the crystallization of their Russian-Balkan-Turkish conquests into a colossal *Servile State*, an enormous military-economic block completely dominated from Berlin, comparable in extent with Russian, English or American territory, but incomparably greater in population and wealth, in military strength and commercial-industrial possibilities. This, and this alone, is meant by Naumann's words: "What at the bottom is this war about? The question at issue is, whether there are to be three great world-empires in the future or four." Since Russia's eclipse he would now say "two" and "three" instead of "three" and "four." Of course, it is well known that Germany's ulterior ambitions extend over Africa, Asia, South America, and even Australia and the United States, but it suffices now to consider only the region of present accomplishment, a region stretching from Finland to Switzerland, from Bremen to Aleppo. Such is the immeasurable mass carved out by the German sword, with intent to smite and grind into powder all other governments and civilizations of the globe.

If such be the German aim, and such the undeniable actual and present German achievement, the aim of the Allies would seem to be definitely and unmistakably prescribed. Never, not even for a moment, dare they acquiesce in this German "organization;" they must set themselves resolutely, unflinchingly, uncompromisingly to undo the work of Teuton steel and gold, to rend

This article, by Dr. William Benjamin Smith, condensed for the MANUFACTURERS RECORD, is from a paper submitted by him as delegate of the State of Louisiana to the convention on "Win the War for Permanent Peace," Philadelphia, May 16-18, 1918. Dr. Smith was born in Stanford, Ky., in 1850. He received the degree of A.M. from Kentucky University, 1871; Ph.D., University of Gottingen, 1879. Taught and studied languages and sciences, 1871-80; professor mathematics, Central College of Missouri, 1881-85; professor physics, 1885-88; mathematics, 1888-93; University of Missouri professor mathematics, 1893-1906; professor philosophy, 1906-15; emeritus professor since October 26, 1915, Tulane University. He was a delegate of United States Government to First Pan-American Scientific Congress, Santiago, Chile, 1908; member American Mathematical Society; Circolo Matematico di Palermo; Kantgesellschaft, Berlin, Germany. Among many things he is the author of "New Testament Criticism in Encyclopedia Americana," 1906; "Mathematical Definitions in New International Dictionary," 1908; "Ecce Deus," German edition, 1911; English edition, 1912; a long series of articles answering criticisms of "Ecce Deus"; "Nuevas Teorias de los fenomenos fisicos," in Vol. V of Cuarto Congreso Cientifico (First Pan-American).

asunder and brush away the subtle web wherein Berlin would weave into one huge *Servile State* a whole score of nations, peoples and tongues, of unrelated tribes and kindreds of earth.

Such "organized" slavery of Finn and Turk, of Russ and Lett, of Pole and Czech, of Magyar and Ukrainian, of Yugo-Slav and Bulgar, of Greek even and Italian is intolerable to the western spirit of freedom, and there must be no thought of peace or compromise of any kind, but only unremitting war until this Babel-structure of force, falsehood and fraud, cemented with the blood of 20,000,000 victims, shall be dashed to earth in dust and ashes, until the right of a nationality to live its own life unsubjected to foreign control shall be recognized and enforced even as the similar right of the individual.*

Such is the goal the Allies must set before them and must attain completely at all hazards.

They must realize that Right, Freedom, Justice, Civilization itself is involved in the issue, the most momentous ever yet presented to the race of man.

They must recognize clearly and fully that the constitution of such an economic-military block, the avowed object of the Teuton crusade, means nothing less than slavery for the minor peoples, for all but the dominating "German nucleus," and of this only the very center, the ruling caste, would in any proper sense be free. It cannot be repeated too emphatically that the open aim of the German is not merely political leadership, but economic exploitation, as a "master" exploits his serfs. If the non-Germans get in the way, the German must "use force," as "master" (Hausherr) must "deport them" whither he will, "better to Madagascar," Lagarde admits "this policy is somewhat Assyrian, but there is nothing else to do." The Kaiser, however, improves on Sennacherib and Tiglath-pileser, for he taught and urged the "unspeakable" Turks to deport their Greek subjects in time of peace. The German pretension to unique and unsharable racial rights is open and unmasked. Affirming the necessity of annexing Belgium and other States to "secure German economic future," they boldly and explicitly declare that such annexed peoples must as a matter of course have no voice in the councils of the empire. If at any time such as Delbrueck may strike a note of moderation, it is only the caution of cunning, to be doubly distrusted. Not even the Sozial-Demokrat can resist their mania for "mastery." About a year ago, after Hindenburg's retreat, when the German horizon was dark all around, at a bye-election in Leipzig the minority anti-government Socialists outvoted the majority pro-government Socialists two to one; but a few months ago, after Russia's debacle, when fortune once again had smiled on German arms and gold, another bye-election was held, this time in the most socialistic district in Berlin, and lo! the anti-government wing, the so-called minority Socialists, to the amazement of all, are beaten two to one in their own stronghold by the majority Socialists, the trucklers to the Government, the shouters for war! Plainly, then, the German Socialists nothing succeeds like success. In his recent elaborate work, "Marxismus, Krieg und Internationale," the leading German-Austrian Sozial-Demokrat, Dr. Karl Renner, laughs at Marx as long since outgrown, interprets all history as a movement towards ever-widening "economic areas," and in the interest of such he holds that even conquest, as by the Central Powers, is justifiable. Herewith the German-Socialistic dove of peace is moulted into a lammergeier.

It is idle, then, to suppose that any other argument than disastrous defeat can awaken "the reason and conscience of Germany." Moreover, it must not be defeat in the West alone; it must affect the Eastern and especially the Southeastern front. It must undo and reverse all the accomplishments of Austro-German arms and intrigue and break the spell of Teuton prowess cast over those unhappy regions; it must vindicate to those betrayed and afflicted peoples the right to live their own lives in their own interests, and not as mere feeders of the overgrown Giant on the Spree. It would not be becoming in a mere layman, who is not even a "military critic," to make suggestions as to the conduct of

the great campaign, but it would rejoice the loyal American heart to think not only of an army of 3,000,000 Americans facing the foe in France, but of 2,000,000 more moving with resistless might to the rescue of Serbia and Rumania, to the punishment of Turkey, Bulgaria and the House of Hapsburg. The Teuton may fight with the utmost desperation on the Rhine, but not on the Danube and the Save; there the resistance would be far less staunch. Besides, the internal conditions of the dual monarchy make it especially vulnerable and assailable. There seems to be no good reason why we should not maintain a force of 5,000,000 at the front, and such appears to be exactly the way to save the lives of our gallant youth and bring the strife to a sharp, speedy, decisive and triumphant issue. Against 1,000,000 or even 2,000,000 Americans the united strength of the Centrals might still be able to bear up. But before the might of 5,000,000 in league with the millions of France, England and Italy, the most fanatical would perceive that the contest was hopeless and would seek for an early peace even on the hardest terms. A simultaneous assault in overpowering numbers and munition strength would give the signal for a general collapse of mid-Europe, for the ebullition of all its long-pent-up elements of discontent, yea, for the disruption of that ungodly league, united only in the diabolic desire to govern others to their own advantage. The mere presence of 5,000,000 fresh fighters, whose prowess the Germans no longer deny, would in itself be victory, for it could not fail to spread despond through the enemy's ranks, to unnerve them and to impair that moral force which Clausewitz considers the sure pledge of success. If, then, we would save the lives of our youth, let us exert every effort to throw into the field along the whole front an overwhelming force, which by its very immensity shall strike terror and despair into the war-weary heart of the Teuton.

[Though written weeks ago, before there was any sign of Bulgaria's collapse, this article serves now to emphasize the need of a complete mastery by the Allies of the entire Eastern situation.—Editor MANUFACTURERS RECORD.]

The Boundless Enthusiasm of New York's Patriotism.

New York, September 29—[Special].—Absolutely aflame with patriotic fervor, New York presents a deep-stirring spectacle today and provides a picture wholly at variance with the concept of the great metropolis as a cold and soulless thing. It is today the very personification of a nation whose great heart is throbbing with a humanitarian purpose, and whose whole soul is enlisted in the war for the salvation of civilization. Since the President in person inaugurated the Fourth Liberty Loan drive at the Metropolitan Opera-house Friday night the kindled blaze of patriotic zeal has mounted high and higher until every portion of the city has been enveloped by its glow. Two hundred millions of bond subscriptions in the first 24 hours measures the earnestness with which New Yorkers have entered on the drive, and on every hand the public appeal is insistent and intense.

Fifth avenue, from the Altar of Liberty in Madison Square to Central Park at Plaza Square, is filled with banners and flags and streamers, the colors of the United States and the countries with which we are fighting in this war, until the great thoroughfare has come to be called the "Avenue of the Allies."

Every billboard space everywhere is covered with appeals to help along the bond drive, and "Lend" signs are even carried on the windows of taxicabs. "Lend" is the watchword. "They fight; you lend" is encountered on well-nigh every pillar and post.

In most of the store windows on Fifth avenue and in many others elsewhere over the town there are paintings by artists of renown depicting battle scenes and portraying instances of the savagery of the Huns.

One horror-inspiring canvas shows a monster of a German soldier beneath the cross of Christ. At his feet are the bodies of murdered women and children. His fiendish work completed there, he is shown with bayoneted rifle in hand and hatred in his brutish face as if about to make a lunge at Christ's body on the Cross.

New York's appeal is powerfully made. Could it reach out to everybody in the land, the Fourth Liberty Loan would be vastly oversubscribed in the early days of the drive.

The Shortage of Domestic Manganese.

Editor Manufacturers Record:

The United States Geological Survey estimates shortage in the production of manganese in the United States at 585,000 tons for the present year, and the port for the first quarter, January 1 to March 31, shows that Virginia produced 1690 tons of 40 per cent. 1485 of ore from 15 to 40 per cent. and 1797 tons to 15 per cent. ore, a total of 4974 tons. The estimated production of the three grades of ore in Virginia in 1918 is 34,280 tons.

Considering the number of deposits, this output is entirely too small, and with a fair effort we can produce 100,000 tons this year and be in a position to double it next year. Why the shortage in production?

It is a well-known fact that Virginia is the largest producer of manganese in the United States, and has ranked first in the production for the past 25 years. Virginia also has more developed mines and promising prospects than any other State. Many of these mines have been developed to the point of production and are now idle, and many promising prospects have not been touched.

Capitalists for some reason or other have been slow to seriously consider the advantages of sound investments in manganese property. This is partly due to the fact that quite often a few individuals with mining experience or business ability have purchased what they thought to be a manganese property, after blowing in from \$10,000 to \$50,000 on what they call "development," quite often purchasing an elaborate milling equipment before they have a ton of ore in sight, and after spending all they have and can borrow will run back to their starting-point and howl "nothing in the manganese industry." Right here I will state that a few hundred dollars spent for a competent mining engineer to go over the proposition before the expenditure would have saved same or made a success of the matter. The largest investors in manganese property would no more think of operating a manganese mine without the help of an engineer than a banker, for instance, would think of treating his family for typhoid without a physician.

A short time ago I examined a good manganese deposit on which over \$25,000 had been spent and the owners had quit. All the owners were good businessmen along their lines, but none of them had any knowledge of mining, and they put a first-class traveling salesman in charge of the development. Result, \$25,000 spent on useless work. Ten thousand dollars properly spent would have put the property on a paying basis. They had the ore, but the salesman in charge did not know how to get at it.

Many owners of valuable manganese properties are "dogs in the manger." They do not have the necessary capital to operate the property, and are afraid that they lease it the lessee will make a few dollars. On property where the risk is small and the ore can be gotten out quickly and without expensive machinery, I would think it fair for the lessor to have a 10 per cent. royalty on the value on board cars, and in some instances from 5 to 10 per cent. of the profits. On propositions where quick returns are not in sight and large sums must be laid out before getting any returns, a smaller royalty should be satisfactory.

I think that if a man has ore that may be of good service in winning the war it is his patriotic duty to make such concessions as will make it available now, when it is needed. The owner should remember that he is getting a share of the high price which will prevail only for a limited time. A royalty of 10 per cent. now means more than 30 per cent. in normal times.

The mining engineers, realizing the necessity and need of manganese as a war material, are striving might and main to increase the production, but without the proper backing their efforts will bring only limited results. A few new capitalists have recently taken hold of this industry and have made large profits in a short time on small investments. The mining of manganese is not a millionaire's business, but a business which a man of moderate means can get into.

The mining engineers are striking in this matter, now let the capitalists step in.

MARSHALL HANEY,

Consulting Mining Engineer.

Geer, Green County, Virginia.

*Which does not mean, however, that the backward and recalcitrant, whether nation or individual, may not be subjected to police restraint, for their own good and for the welfare and security of their neighbors.

The Nation's Chemistry Mobilized for War and Peace

THE ACHIEVEMENTS OF AMERICAN CHEMISTS DOOM GERMANY'S CHEMICAL TRADE IN AMERICA—THE POTASH INDUSTRY AND THE PRO-GERMAN FIGHT TO SAVE IT FOR GERMANY.

By ALBERT PHENIS.

New York, September 28.

Of towering significance in the Fourth Chemical Exposition, closing here tonight, is the demonstration that the chemical industry of America is aggressively on the offensive; that everything in chemistry with us is on the jump; that the chemists are making the same sort of a drive in their line that our armies are making in theirs; that they have splendid victories to their credit, just as our troops have "over there," and that courage and confidence now inspire the entire army of chemists and are moving them on to still greater achievements hour by hour.

The full measure of accomplishment to date was here on view, and there was general compliance with the expressed desire of the exposition management that exhibitors indicate what articles had been produced in this country for the first time since the war. Thus there was a particularly strong showing in the line of dyestuffs, dyes themselves, raw materials, laboratory operations and finished goods, silk, cotton, wool, and all, which demonstrated the completeness of the dye industry development of this country since the beginning of the war. The dyestuffs problem, which seemed formidable and disturbing at the beginning of the war, has manifestly been solved. With anything like encouragement on the part of national legislation there need never come a time when America will be otherwise than wholly independent of every other land—and particularly and especially of Germany—in everything that relates to trade in dyes.

In public discussion and in private talk the far-seeing, broad-visioned leaders in chemistry voiced the need of the same sort of aggressive, progressive action in the development of the potash industry that has taken place in dyes. A good start has been made here in potash production, as was demonstrated by facts presented through papers read in the auditorium meetings; in lantern slides and moving pictures, and in the exhibits of potash production from the kelp of the Pacific coast; the recovery of potash from the dust of cement plants and iron-furnace gases by the Cottrell processes, and the demonstration that potash from numerous shales, particularly those of Georgia, are feasible of recovery on a profitable commercial scale.

Nevertheless, the fact stands out that the country is not yet aroused to the potash situation as it was in the crisis confronting the dyestuff trade. "Whenever the farmers of the South, the users of potash," one leading chemist declared, "become as insistent as were the users of dyes, the cotton manufacturers of New England and elsewhere, there will be national legislation that will safeguard investments of capital in potash manufacture, just as there has been in the dyestuffs industry. Opportunity should be provided for the amortization of capital that may be invested in potash plants, and all materials required for the construction of potash plants should be made readily available. If necessary, there should be a potash board or bureau, entirely distinct from other mineral supervision or administration, so that we may get effective action and get it at once."

Possibly the farmers of the South are gagging at the industrial protection idea involved in safeguarding investments in the potash industry, but it is probable that much of the lack of interest on their part is due to propaganda work intentionally pro-German or otherwise. Positive pro-German work along this line is found in the insistence that no country has such potash deposits as Germany, and that therefore it is an economic blunder to try to create a potash industry in this country when Germany will be able, as soon as the war has ended, as these people state, to furnish abundant potash supplies at lower prices than we can ever hope to touch. Negative and insidious pro-German propaganda consists in spreading broadcast the view that potash is not really essential after all; that phosphates, of which we have an abundance, are the

more essential, and that there is really no occasion for the costly pioneer work that will be required to establish a potash industry in this country, the sources of which will be the fumes and gases from iron furnaces and cement plants, the shales, the kelp, etc.

Against this fallacy organized opposition is being formed. The essentiality of potash is affirmed, and it is maintained that the economic freedom of America, as well as its self-respect, demands that never again shall this country be dependent on Germany for any part of its potash supplies. The sources of supply are entirely sufficient for potash independence here, it is unequivocally declared, and the prosperity and well being of the country demand that adequate steps be taken now to establish the industry on a firm and permanent foundation.

This is the gist of views I have heard expressed by those who know the potash situation, such as Dr. Herty, Dr. Grasty, Linn Bradley, Poole Maynard and others. It is an indication that wherever work will be required, whether in Washington, among departments whose interests are in conflict and where some jealousies may exist, or in the country at large, where full appreciation of the necessity for establishing potash independence does not yet prevail, in these and all other quarters where the mainsprings of action reside a campaign of education will be carried on till this most important development has occurred and America has a potash industry as firmly established as its dyestuffs trade.

That America is beginning to cut a world figure in chemistry was demonstrated by the attendance of foreigners at this show. There have been large delegations from Canada, South America and Japan, and visitors from Australia, Sweden, Russia and elsewhere. While these visitors may not have made the trip to this country on purpose to attend the Chemical Exposition, it is yet an established fact that they at any rate timed their trips so that they would be in New York while the exposition was on. There has been an enormous attendance at all times—as many as 10,000 in one evening, at least once—and the questions visitors asked have demonstrated an increasingly intelligent conception of what the development of the chemical industry means in the progress of the United States.

Already plans are being laid for the Sixth Chemical Exposition at the Grand Central Palace in 1920. The 1919 exposition will be held at the Coliseum in Chicago the week of September 22, the Government having taken over the Grand Central Palace for hospital purposes till the end of the war. It was assumed that this might prevent the use of the building for exposition purposes next year, so a contract was made with the Chicago authorities, and already the greater part of the space has been taken by intending exhibitors. Three floors of the Grand Central Palace were entirely occupied by the exhibits of this year, and had not the railroads been forced out by the restricted activities under Government control a fourth floor would have been required. In the Chicago Coliseum there is only about the space afforded by two floors of the Grand Central Palace, so there will necessarily be a curtailment of exhibits next year. All will be required to get along with some reduction in floor space. But substantially every exhibitor of this year will be represented at the Chicago show. The tremendous value of the Chemical Exposition has been established. With the return to New York in 1920 there will undoubtedly be an event of such accumulated influence and importance as to give it rank with the great international expositions of the past.

Exposition Notes.

A feature of the exposition of this year was the increased number of "live" exhibits, of those showing machinery in operation. In point of interest these exhibits, used with the laboratory processes and the

demonstration of the gas mask, although the latter was perhaps the greatest single center of attraction.

A most comprehensive exhibit was made by the Buffalo Foundry & Machine Co., which occupied the entire Depew place end of the first floor with a display of an enormous nitrator and other chemical apparatus. The nitrator was en route to service in an explosive factory; the other apparatus to the company's laboratory at Buffalo.

An exceedingly interesting and instructive display was made by the Industrial Alcohol Co., which showed the various commercial, industrial and mechanical uses of alcohol, as raw material in chemical processes, as a solvent, as fuel, etc. A model of a molasses tank steamer was also shown, which is used to bring molasses from the West Indies to the company's factories at Baltimore, Brooklyn, Boston and New Orleans.

At the booth of the Barrett Company there was a graphic wall board showing the 200-odd derivatives from coal—gas, coke and the long list of tar products—one of the greatest of all the triumphs of chemistry.

There were 12 booths occupied by Canadian exhibitors. Among them was a comprehensive exhibit of Canadian minerals and resources by the Department of Mines of Canada; another by the Shawinigan Water & Power Co., which has enormously developed the manufacture of synthetic acetic acid and allied products from calcium carbide for war uses, and which has operations in various parts of the United States, including Baltimore. The University of Saskatchewan exhibited a straw gas generator with remarkable claims as to providing the farmer with an equipment with which he can produce gas for heating, lighting and power purposes from waste straw; also a domestic lignite furnace.

The Du Pont interest exhibited an amazing array of products, including not only all kinds of explosives, but chemicals and mixtures for industrial, medicinal and laboratory uses; dry and pulp colors; chemicals and pigments; acids, alums, etc.; leather substitutes, pyroxylin composition made into manicure sets, bathroom fixtures, optical goods, etc.

At the booth of the Mathieson Alkali Works there was a representation of the plant at Niagara Falls for the manufacture of synthetic ammonia, which has just been taken over by the Government. The Government has also taken over this company's plant at Saltville, Va., which was the first in the United States to manufacture cyanamid.

The Klipstein interests had a complete exhibit of colors now made in this country and samples of goods dyed from these products. An important plant of this company is in operation in Charleston, W. Va., which produces coal-tar dyes and intermediates, acid colors, blues, reds, etc., and sulphur black, etc., are among the latest colors manufactured here.

The Rollin Chemical Co., which also has a factory at Charleston, W. Va., and was the pioneer manufacturer of barium and strontium products in the United States, has a full line of exhibits of barium, strontium, chlorine and sodium products.

Some remarkable facts were presented at the booth of the Koppers Company of Pittsburgh. For instance, that of the close of 1918 there will be in operation 9282 Koppers by-product coke ovens, having a capacity to make 32,200,000 tons of coke a year. Koppers ovens now installed are saving every year 2,000,000 tons of coke, 264,000,000 gallons of tar, 700,000,000 pounds of ammonium sulphate, 214,000,000,000 cubic feet of high-grade gas, 66,000,000 gallons of benzene and 14,000,000 gallons of toluene.

Raymond Bros. of Chicago had in operation a number of pulverizing machines, with air separators, for producing fine powdered products, attracting many interested visitors throughout the week.

The Clinchfield Products Corporation had a complete exhibit of chemical products from the Chemical Works at Johnson City, Tenn., and the feldspar works at Erwin, Tenn. Attractive samples of pottery and table ware from the Erwin potteries were also on view.

The B. Miffin Hood Brick Co. of Atlanta, Ga., had an exhibit of pottery products, including their own patented spiral rings. A Government contract for 7000 carloads of their products has required the use of 17 factories' facilities in filling this one order. Other work in hand requires the utilization of five additional factories, making 22 factories that are now working on Hood products.

The Alberene Stone Co., with soapstone quarries at Schuyler, Va., had a full exhibit of the various uses for

their product. Starting 36 years ago, when the chief use was laundry tubs, the company now fills large orders for electrical, chemical and sanitary requirements.

The Anti-Hydro Waterproofing Co. of New York gave a demonstration of their liquid compound as active on cement to make it impervious to water, frost, oils, odors, etc., and resistant to the action of acids, alkalis and other agents otherwise destructive to concrete.

The Baltimore Cooperage Co. of Baltimore was conspicuous as the only exhibitor of wooden tanks, a full line of which as adapted to chemical purposes was on display.

Very enterprising was the spirit shown by the Monongahela Traction Co. of Clarksburg, W. Va. The industries and resources of the Clarksburg-Fairmont district were well advertised by this company, the only one of its kind represented at the exposition.

A novelty in that line was the display of the Irving National Bank of New York. The activities of this enterprising bank were shown in the issue of pamphlets on public questions on acceptances, on posterage trade with Latin America, on making arrangements by which our soldiers in Europe may cash their checks over there, in advertising campaigns, etc.

The General Electric Co. had an exhibit of electric ware, bakelite gears and pinions, induction motor, new potentiometer and other meters, auto starters, carbon circuit breaks and oil switches, etc.

At the booth of the Westinghouse Electric & Manufacturing Co. interest was manifested by visitors in the tungsten exhibits, both in the metal strips and as utilized in electric lamps for illumination, X-ray machines, etc. Lantern slides showed the various activities of the company in chemical and general lines.

The splendid presentation of Knoxville's resources and attractions to seekers after development opportunities was a demonstration of the value of such efforts to all Southern communities. The resources of not only the Knoxville district, but of all Tennessee, were graphically and impressively shown, and the large space occupied at the exposition was constantly crowded with interested visitors. Knoxville's enterprise was emphasized by the fact that no other city or community was thus represented here, and an amount of advertising was secured that must be of greatest advantage and worth many times the cost.

SHALL WE HATE GERMANS?

Well, that depends upon your definition of hate. Do you hate the blood-sucking tiger that kills your child?

Do you hate the rattlesnake that strikes its fangs into your wife?

Do you hate the murderer who kills your mother and the brute who outrages your daughter?

Is it hate that prompts you to kill such fiends in defense of your loved ones, or is it merely a determination to rid the world of them, knowing that in doing so you are protecting all humanity?

Germany embodies the blood lust of the tiger, the deadly fangs of the rattlesnake, the cruelty of the murderer and the beastly nature of the outrager—and into this war it has thrown all of these powers, guided by science prostituted to such vile ends.

Christ prayed for those who crucified Him, saying, "they know not what they do," but Germans know full well exactly what they are doing. They gloried in preparing for war, they gloried in its atrocities, and no one can ever pray for them on the ground that they did not know what they were doing. Any prayer for them must be on some other ground.

WHERE DO YOU STAND?

He who gives himself up to the devil because he lacks the moral backbone and stamina to stand for the right would be saintly as compared with America if we yielded to Germany's wiles and granted her a peace without punishment.

Peace with uncrushed, unrepentant Germany would be as great a crime as peace with Hell itself.

Enormous Industrial Losses In France and Elsewhere

HOW RECONSTRUCTION OF DESTROYED PLANTS WILL BE HANDLED.

[Special Correspondence Manufacturers Record.]

Washington, D. C., September 23.

The part that the United States is to play in the rehabilitation of the devastated districts of France after the war is one that may well occupy the gravest attention of the nation's manufacturers.

In the invaded portions of France which includes the Departments of Meurthe-et-Moselle, Ardennes, Somme, Aisne, Nord, Pas de Calais and others, there are 26,000 factories utterly destroyed. This same invaded section before the war supplied 90 per cent. of the iron ore, 83 per cent. of the pig-iron, 75 per cent. of the steel, 70 per cent. of the coal, 94 per cent. of the combed wool, 90 per cent. of the linen thread and 75 per cent. of the sugar of the Republic.

While it is impossible to give any exact idea of the total value of plants destroyed, there has been a semi-official statement prepared of the cost of construction before the war of a few of the industries that have suffered most. This is as follows and will give only a partial idea of the construction work to be done when the war is over:

	Francs.
Spinning of combed wool (2,400,000 spindles)....	192,000,000
Spinning of cotton (2,800,000 spindles).....	184,000,000
Spinning of flax (500,000 spindles).....	100,000,000
Wool weaving (56,000 looms).....	90,000,000
Weaving of cotton cloth (29,000 looms).....	46,000,000
Central electric stations and lines of distribution (300,000 K. W.).....	250,000,000
Machinery and electrical manufacturing plants.....	500,000,000
Sugar refineries.....	135,000,000
Breweries.....	137,000,000
Small machine shops.....	350,000,000
Coal mines.....	900,000,000
Iron mines, blast furnaces and steel works.....	2,500,000,000
(A total of approximately \$1,076,800,000.)	

These figures do not include the cost of land, stock in hand and many buildings. It is conservatively estimated that the cost of replacing these industries will be nearly three times the original cost.

In December, 1914, the French Government laid down the principal that all damage caused by war would be charged to the French nation as a whole. This would be regardless of indemnities exacted from the ruthless Hun on the day of victory. For the ruined manufacturer does not want cash—he needs steel, bricks, wood, and the delays involved in the adjustment of individual indemnities would cause many years lost in reconstruction.

An Association Centrale was formed with sub-committees for different industries, that had the power to submit a comprehensive purchasing program, based on expert investigation. But this had no power to purchase. A Comptoir Central was accordingly launched in the shape of a stock company. Its capital stock is only a nominal \$200,000 and the shares valued at \$20 apiece are held by the 226 members of the Association Centrale. This is done so that the purchasing bureau shall represent the small as well as the important manufacturers. Behind this Comptoir Central is the support of the State, which has already voted

a preliminary credit of \$50,000,000 as a fund upon which the Comptoir Central shall make its first purchases. This is the present machinery.

It is clear that purchases for industrial reconstruction can not be made now. The war is to be the consideration. But in the meantime the Comptoir Central is making exhaustive estimates of the material which each industry will need. In granting a backing to the Comptoir Central, the French Government definitely committed itself to the principle of collective purchasing and logically, therefore, the principle of collective selling. Mr. Pierce C. Williams, the U. S. Commercial Attaché in Paris, recently said:

"Since the United States must naturally be called upon to aid France in the work of industrial reconstruction, the Comptoir Central is interested in getting in touch with American manufacturers. One of the directors of the Comptoir Central informed me that there would be little use in having individual American manufacturers send catalogues to the Comptoir Central, or enter into preliminary correspondence with a view to taking orders later on. It has already been emphasized that the task of restoring the destroyed industries of France is too huge for individual and competitive buying. The directors are equally certain that it will be out of the question for isolated American firms, no matter how large or well equipped they may be in their own special branch of manufacture, to meet the demand that will be made upon them by France for the restoration of the invaded regions. It is with groups of American manufacturers, a group capable of supplying a certain industry in an invaded district with all of the materials and special equipment needed for its restoration, that the Comptoir Central wishes to establish relations at this time."

Mr. Williams went on to say:

"I have said that French manufacturers who plants have been destroyed by the war expect Americans to help them. It is this principle of help that should animate all American plans for sharing in the work of reconstructing the invaded regions. It is not a question whether American manufacturers will be able to hold their own in competition with other nations in supplying the needs of France after the war. There will be more business in connection with industrial reconstruction in France alone than any single nation can properly attend to."

This appeal for aid from the manufacturers and the seas who have been stricken by the blight of German mailed fist, will come not only from France but Belgium will call for help. Russia, Poland, Roumania and Serbia will call. The superhuman trade demand that will be made upon our raw materials and factories will go far to solve the problems of what to do with the victorious United States Army when it returns to civil life.

From present indications there will be plenty of work for each able man to do if he cares to accept and for those who suffer from the wounds of war there will also be a place in industry for which they will be fitted by vocational training as a part of Government scheme to eliminate dependency for men who make the sacrifices in order to preserve liberty of the world.

WORLD'S PRODUCTION OF PETROLEUM.

WORLD'S PRODUCTION OF CRUDE PETROLEUM IN 1917, AND SINCE 1857, BY COUNTRIES.

[Prepared by J. D. Northrop, United States Geological Survey, Department of the Interior.]

Country.	Production, 1917.			Total production, 1857-1917.		
	Barrels of 42 gallons.	Metric tons.	Per cent. of total.	Barrels of 42 gallons.	Metric tons.	Per cent. of total.
United States.....	42,555,315.011	44,708,747	66.98	4,252,644,003	567,019,201	60.88
Russia.....	769,000,000	9,418,500	17.73	1,832,585,017	242,536,152	26.31
Mexico.....	55,292,770	8,264,266	11.94	222,082,472	33,166,241	3.53
Dutch East Indies.....	12,928,955	1,778,495	2.58	175,103,267	23,628,200	2.53
India.....	18,500,000	1,333,333	1.70	98,583,522	13,144,469	1.41
Gallia.....	5,965,447	829,629	1.19	148,459,653	20,646,663	2.21
Japan and Formosa.....	2,898,654	386,487	.58	36,065,454	4,808,727	.51
Rumania.....	2,681,870	373,000	.54	142,992,465	19,283,174	2.05
Peru.....	2,533,417	337,789	.51	21,878,285	2,917,104	.31
Trinidad.....	1,599,455	222,456	.32	5,418,885	733,670	.08
Argentina.....	1,144,737	168,340	.23	3,047,858	436,033	.05
Egypt.....	1,008,750	134,500	.20	2,768,686	369,158	.04
Germany.....	995,764	140,000	.20	15,952,861	2,155,974	.23
Canada.....	295,532	37,000	.04	24,112,529	3,215,004	.33
Italy.....	29,524	3,700	.01	1,947,289	263,919	.03
Other countries.....	1,530,000	20,667	.03	1,927,000	259,600	.03
	590,651,086	68,000,596	100.00	6,983,567,246	934,137,289	100.00

*Quantity marketed. †Estimated. ‡Includes British Borneo. §Estimated in part. ¶Includes 19,167 barrels produced in Cuba.

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There is a moral flabbiness in discussing the German which has a sinister aspect. We are told very glibly, often by the Church press, more's the alarm and the pity, that we must be sure to love the Germans. They are our enemies and we must heap coals of fire on their heads by returning good for evil. This sounds pious, but is really impious. All such talk is pro-German talk. It may not be so intended. I say, it operates so. We are at war with Germany. Some day (that day, not remote, please God) we shall be framing a peace with Germany. All this indiscriminate, flabby, spineless, godless talk about loving the German, ministers to

Can one not discriminate between punishment and

Taking a lesson from the late prolonged drouth and water shortage, many ranchmen and farmers of Western Texas are constructing concrete water storage tanks. In some instances these tanks are of very large size and are capable of holding sufficient water to supply thousands of head of cattle. Underground concrete-lined silos are also being built all through the drouthy region.

Pass every copy on to someone else and urge them to send it on to others, that in every home the story as given in every issue of what this war means to every man, woman and child in this and in every other land may be fully understood. Not until then will our nation awake. You can help in this way to win the war.

Potash as a By-Product in Iron and Cement Production

By J. S. GRASTY, Geological and Chemical Engineer, Charlottesville, Va.

Increased farm production of foodstuffs, as well as of cotton, is essential for the safety of civilization. The increasing fertility of our soil is, therefore, a vital factor in the safety of the nation and of civilization. In the past we have been dependent upon Germany for the potash needed for our soil. Germany's potash monopoly has made that country feel that it will be able to dominate peace terms after the war. Our independence in the future can only be secured by freedom from dependence upon Germany's potash. For this reason the Manufacturers Record continues the discussion of the potash question through the publication of the following paper by Dr. J. Sharshall Grasty.—Editor Manufacturers Record.

It is, of course, a matter of general information that prior to the war Germany supplied practically all the potash salts used in the world. With but small reserve supplies of potash and the German supply entirely cut off, this country has in consequence faced a serious shortage in this material so essential as a fertilizer. The best indication of this fact is that high-grade potash salts are now quoted at approximately \$350 to \$425 per ton, whereas the normal price before the war was \$35 to \$40 per ton. Further evidence on this point is given by the following table of imports of potash salts:

	Pounds.	Value.
1912	622,179,164	\$10,692,285
1913	612,514,916	10,805,720
1914	485,818,459	8,744,973
1915	170,550,450	3,766,224
1916, January-April.....	3,091,250	579,260

These figures show that before the war over 600,000,000 pounds of potash salts were imported annually. Of this quantity approximately 500,000,000 pounds were in the form of chloride and 100,000,000 pounds were in the form of sulphates, both of which salts are used especially for fertilizers. In 1915 the imports were less than 200,000,000 pounds, 90 per cent. of which was used by the fertilizer industry.

If our normal annual consumption of potash be represented by the figures for 1912, there was in 1915 a shortage of over 450,000,000 pounds, and, judging from the figures, this shortage was much greater in 1916.

The following table gives the potash production of the United States for 1917:

Sources.	No. producers.	Available K ₂ O. Short tons.
Mineral Sources:		
1. Natural brines.....	10	20,652
2. Alunite (refined salts, crude and wasted alunite).....	3	2,402
3. Dust from cement kilns.....	3	1,621
4. Dust from blast furnaces.....	3	185
Organic Sources:		
1. Kelp	10	3,572
2. Molasses residue from distillation..	4	2,846
3. Wood ashes.....	26	424
4. Evaporated Steffins water from sugar refineries.....	5	359
5. Evaporated wool washings and insoluble industrial waste.....	3	305
	77	32,366

According to the United States Geological Survey, the production of potash for the first six months of 1918 was between 20,000 and 25,000 tons of K₂O, and it is estimated that the total production for the year will reach 60,000 tons. On the other hand, the Bureau of Soils estimates that the cement plants of this country should be able to produce more potash alone than the total estimate for 1918*. However, it should be remembered that this amount is only about 25 per cent. of our normal requirements.

The present condition of potash shortage is so serious that both the United States Geological Survey and the Department of Agriculture have directed especial attention to the investigation of new sources of supply. Borings, with practically unsuccessful results, have been made in the "Red Beds" of the West and elsewhere in the endeavor to locate suitable deposits, and to determine whether or not potash salts are to be found in association with beds of common salt in sufficient quantity to be of commercial importance, but, as indicated, so far the results have not been satisfactory.

The Bureau of Soils of the Department of Agriculture has been investigating the extraction of potash from the sea weeds (kelps) of the Pacific Coast. This Bureau has also investigated the various processes of the extraction of potash from feldspar, etc. Impor-

tant work is also being done by Dr. T. Poole Maynard of Atlanta, Ga., in investigating methods of recovery of potash from the sericite schists and slates of Georgia.

The conclusion is definitely reached that a potash industry in order to be successful must be considered strictly from the point of view of cost of production. Many enterprises which are now producing at a profit cannot expect to survive during the post-war period. In fact, the only potash industries for which success is assured are those which depend upon recovering potash as a by-product, and therefore this desired end can be attained in the treatment of volatilized products of Portland-cement plants and the gases of blast furnaces by making use of the Cottrell processes of electric precipitation.

Too much emphasis cannot be placed upon the point that potash produced in this country must be able to compete with that produced in Germany after the war. Potash recovered as a by-product should be produced at a price as low as \$15 per ton after all charges have been deducted. Also, the probable tonnage and stability of the industries of which potash is a by-product must be taken into consideration. As previously indicated, there are apparently only two sources of by-product potash in this country, namely, cement plants and iron blast furnaces. At the present time considerable quantities of potash are being produced as a by-product of cement plants, and large profits are being earned.

Very little, however, has as yet been recovered from iron blast furnaces, although such plants offer as good a field for the use of processes of recovery as cement plants, if not an even better field. Nevertheless, sufficient work has been done by Wyssor* of the Bethlehem Steel Co., Porter of the Security Cement & Lime Co. and others to prove that blast furnace gases do contain potash, which in many cases can be recovered profitably, especially so when employing iron ores which are high in potash.

Furthermore, blast-furnace gases should be cleaned of their suspended particles, anyway, in order that the efficiency of the furnace may be increased. It has been found that the best way to accomplish this is by use of the Cottrell processes, which, in addition to cleaning the gases, also recover the potash in marketable condition. Taking into consideration the fact that it is highly advisable from an operating point of view to increase the efficiency of blast furnaces by employing the Cottrell processes to clean the gases, regardless of the recovery of potash which is effected at the same time, obviously the potash so recovered is obtained at a practically negligible cost. As a matter of fact, furnace companies could afford to pay well to have their gases cleaned and give the recovered potash to the party doing the cleaning.

Potash recoverable from iron blast furnaces originates in the iron ore, coke, limestone and other fluxing agents charged into the furnace, and a small amount of potash leaves the furnace in the slag and in the gases. By use of the Cottrell processes the gases pass through an electric precipitator before they reach the stoves. With a given slag volume, the amount of potash carried from the furnace in the slag is more or less constant, or, rather, it does not exceed a certain quantity. Therefore, of the total amount of potash charged into the furnace, obviously the greater part can be recovered from the gases. On the other hand, it is true that most iron ores, limestones and cokes do not contain much potash; consequently, if large re-

sults in the matter of potash recovery are to be obtained, it follows that one or more of the raw materials employed should be high in this substance.

As to the potash content of fluxing materials, limestone or dolomite, and of coke, there is often wide field for investigation; but the information available points to the conclusion that the potash content of these is in general more or less constant, fairly low as compared with the variations in potash content to be found in certain of the iron ores. All, as goes without saying, it is the potash in the iron which is most important, although it is also obvious that if fluxing materials and coke be also high in potash, that is very desirable, too. Furthermore, the presence of potash in the fluxing stone, coke or iron ore has an additional value because of the fact that acts as a desulphurizer.

An investigation of the potash content of different iron-ore deposits in the United States, as reported by others and as determined by the present writer, leads to the conclusion that the only large tonnages of potash-bearing iron ores known in this country occur in the State of Alabama. These occurrences are found in the eastern part of the State, in Talladega and Shelby counties, and may be assigned on a most conservative basis an aggregate of considerably over 100,000 tons of ore which is much higher in metallic content than the Clinton ores, the latter being the chief source of the blast-furnace industry of Alabama.

These relatively high-grade Cambrian ores occur in the Weisner formation of Cambrian age in three districts—the Weewooka, the Eumauhee and the Columbiana. Metamorphism has altered the Weewooka and the Eumauhee ores to a specular or hematite, while the Columbiana is bright red. The quality of these ores and their range in composition compared with other Alabama ores are as follows:

	Range in composition.	Potash content.
Weewooka and Eumauhee.....	40 to 52% Fe	1.50 to 1.75
Columbiana	44 to 46% Fe	1.00 to 1.10
Alabama brown ores.....	40 to 48% Fe	0.20 to 0.30
Alabama red or Clinton ores.....	34 to 50% Fe	0.15 to 0.20

Ore has been mined and sold from all three of the Cambrian ore occurrences mentioned above, which, the way, are controlled by different interests, and have been smelted with most satisfactory results—that in all cases where it has been properly mined free from slate. This is a point which seems worth mentioning for the reason that in one instance, at Tallasseehatchee Creek, the mining was conducted in such a way that the ore shipped was of rather low grade, because of careless mining resulting in a large and unnecessary admixture with slate. Most of these Cambrian beds are, however, entirely free from slate parting. These deposits are within about 40 miles of Birmingham, with other furnaces quite near at hand in the same eastern section of the State.

Referring to the table above, it will be seen that the Cambrian ores, as compared with the Clinton brown ores of Alabama, are exceedingly high in potash. The value of their high potash content can probably best be emphasized by pointing to the fact that at the Portland-cement plant of the Security Cement & Lime Co. at Hagerstown, Md.—whose deposits the present writer located and whose plant has been so successfully managed by Mr. J. J. Porter—the shaley limestone used ranged in K₂O from 0.75 to 1.10 per cent. The net profits obtained in recovering potash at the plant, using the Cottrell electric precipitator, amounted during the year 1917 to over \$200,000. Even this large profit, which is enormous considering the required outlay for equipment and operation, will probably be exceeded by a blast furnace treating a corresponding quantity of material—that is, assuming that the blast furnace runs on these high-potash ores in sufficient quantity and at the same time employs the Cottrell processes for catching the potash. It will be seen by closely the comparison holds between a 3000-barrel cement plant—the capacity of the plant at Security—and a 200-ton blast furnace when it is stated that both handle approximately the same quantity of raw material.

The table below brings out the potash value to be recovered using Cambrian ores as compared with Clinton ores of different grades:

Recovery	40%	45%	50%	55%	60%
Value	\$467,247	\$525,643	\$584,058	\$642,464	\$700,870
Recovery	65%	70%	75%	80%	
Value	\$759,276	\$817,681	\$876,087	\$934,494	

Mr. Charles Catlett of the War Industries Board states* that the average analysis of a number of sam-

*MANUFACTURERS RECORD, March 29, 1917.

*Commenting on this, the editor of the MANUFACTURERS RECORD calls attention to the fact that the blast furnaces could probably produce 200,000 tons of K₂O per year, at the same time obtaining a cleaner gas for their stoves and gas engines.

*"Potash as a By-Product from the Blast Furnace," by R. J. Wyssor. Transactions of the American Institute of Mining Engineers, Vol. LVI, p. 257.

amples of these specular hematites shows a potash content of 2.08 per cent., and he calls attention to the fact that this is over seven times the potash contained in the mixture used by Mr. Wysor at the Bethlehem Steel Co.'s plant.

The following table, showing the cost of producing pig-iron, depending upon the kind of ore used, and the estimated results in potash recovery and profits therefrom by the erection of a Cottrell electric precipitator at a 200-ton iron blast furnace, was prepared in collaboration with Mr. Linn Bradley, chief engineer of the Research Corporation. In this connection it should be stated that the Research Corporation of New York City owns the patents covering the Cottrell processes as applied to the recovery of potash from iron blast furnaces and for other uses except as applied to Portland-cement plants, which rights are owned by the Western Precipitation Co. Mr. Bradley, having had charge of installations of Cottrell electric precipitators for the Research Corporation since its organization, and having given his attention to the recovery of volatilized products of various sorts by use of these processes, including their application to the treatment of blast-furnace gases, any statement from him on these subjects is authoritative.

It is Mr. Bradley's opinion, backed by data which he has assembled, that a 40 per cent. recovery of water-soluble material may be confidently relied upon as a minimum, though he admits that in practice much larger yields are attained, as, for instance, Mr. Catlett, who has served as chemical advisor of the Security Cement & Lime Co., considers an 85 per cent. recovery conservative.* Mr. Catlett also estimates that under present conditions potash recovered at a blast furnace, using the Alabama Cambrian iron ores, would be worth from \$12 to \$15 per ton of iron produced, which means in potash values alone for a 200-ton furnace \$2400 to \$3000 per day.

As is well known, it is the trade custom to sell potash on a basis of the units of pure potash, a unit being 20 pounds. The present market price for agricultural potash is around \$5 per unit as against 60 cents and 70 cents during the pre-war period. As to this matter of prices, it is the opinion of those best acquainted with the industry that the price of potash will remain relatively high for a number of years after the war.

The cost of collecting potash by use of the Cottrell processes* is about as follows:

Collection, including labor, power, repairs and laboratory.....\$0.14 per unit of potash
Packing and shipping.....0.08 per unit of potash
Total operating cost, exclusive of depreciation, royalty and salt addition.....\$0.22 per unit of potash

The cost of the salt addition—about 25 cents per unit of potash—is not a necessary element, and can be omitted whenever price conditions are such as to give an unsatisfactory margin of profit.

The following figures*, taken in connection with the calculated recovery, will give a basis for estimating cost in any particular case:

Labor required for operation—1 foreman, who can also supervise packing and loading, and 1 or 2 operators per shift—about \$12 per day.
Laboratory—1 additional chemist, say \$4 per day.
Power—1300 kilowatt hours per day for 3000-barrel plant based on dry collection plant—about \$12 per day.

Operating costs and profits would work out about as follows: Operating cost:

Labor.....\$27.00 per day—\$0.000 per bbl. clinker
Power.....25.00 per day—\$0.003 per bbl. clinker
Repairs.....8.00 per day—\$0.002 per bbl. clinker
Laboratory.....120.00 per mo.—\$0.014 per bbl. clinker
Salt addition.....\$0.020 per bbl. clinker

Total.....\$0.034 per bbl. clinker

	Present price.	Assumed post-war price.
Sales price per unit K_2O	\$4.50	\$1.00
Value K_2O collected per bbl. clinker.....	.4675	.1039
Operating cost per bbl. clinker.....	.0434	.0434
Operating profit per bbl. clinker.....	\$0.4241	\$0.0666
Operating profit per year based on full operation cement plant.....	\$458,038	\$65,340

For the benefit of those who wish to estimate the probable recovery of potash at a given plant, the pot-

ash content of whose raw materials have been determined by analysis, and the percentage lost in the slag having also been determined, the method of calculation here indicated, which is adapted from that used by Porter for cement, is submitted:

Let A equal per cent. potash in furnace burden, i. e., average of K_2O in ore, stone and coke.

Let B equal per cent. potash in slag. This ranges from .0017 to .0065, average being .0039%.

Let C equal liberation of potash. This equals $\frac{9500A-3800B}{9500A}$.

Let F equal lbs. potash recombined in slag. This compares with potash combined with clinker in manufacture of cement as follows: The range in per cent. in cement is from .002 to .0039, and in slag from .0017 to .0065, the average in the latter being .0039%.

Let P equal per cent. potash precipitated in treater. This should be 80 to 90% of total entering.

Assume 9500 lbs. burden actually used to produce one ton pig-iron and yielding 3500 lbs. in slag.

Lbs. potash entering furnace per ton pig-iron equals $9500A$.

Lbs. water-soluble potash entering precipitators per ton pig-iron equals $9500AC-F$.

Lbs. water-soluble potash collected in treaters per ton pig-iron produced equals $(9500AC-F) \times P$.

If the average furnace burden be, say, 1 per cent. potash, and the loss in slag .0039 per cent., or about 14 pounds per ton of pig iron, then the potash liberation will be about 85 per cent. of the total present, and 3.29 units of potash, i. e., 65.43 pounds of potash, per ton of pig-iron will be produced. The value of a unit of potash is now over \$5, being, in fact, nearer \$6; but taking it at \$5 per unit, the total value of potash produced at a 200-ton furnace will amount to approximately \$3000 per day. This, however, is assuming that the Cottrell processes will effect a recovery such as is experienced in practice—that is, varying from 80 to 90 per cent. But assuming Bradley's

ESTIMATED RESULTS OF COTTRELL ELECTRIC PRECIPITATOR INSTALLED AT A 200-TON IRON BLAST FURNACE.

Items.	Coke.	Lime-stone.	Dolomite.	No. 1 Camb. ore.	No. 2 red ore.	No. 3 brown ore.
Material cost, 2240 lbs.....	\$8.00	\$1.00	\$1.00	\$5.00	\$2.00	\$3.50
Material cost, 2000 lbs.....	8.70%	2.00%	1.25%	19.30%	18.00%	19.50%
Contents—Silica, SiO_2	5.00%	1.00%	1.00%	4.30%	5.00%	3.90%
Alumina, Al_2O_3	0.30%	53.00%	53.88%	1.30%	18.00%	6% H_2O
Lime-magnesia, $CaO-MgO$	0.30%	0.30%	0.50%	1.80%	0.20%	0.30%
Potash, K_2O	1.70%	0.00%	0.00%	49.90%	34.00%	42.00%
Iron, Fe.....						
Ore required for one ton of iron (2240 lbs.), pounds.....	4396	6305	5212			
Percentage of burden.....	46.07%	50.93%	46.87%			
Coke required for one ton of iron, pounds.....	2700	4480	3000			
Percentage of burden.....	28.29%	35.85%	26.98%			
Dolomite required for one ton of iron, pounds.....	2448	1652	2909			
Percentage of burden.....	25.64%	13.22%	26.15%			
Material cost per ton of iron.....	\$10.89	\$17.92	\$12.00			
Coke.....	\$9.82	\$5.68	\$4.24			
Ore.....	\$1.00	\$0.74	\$1.30			
(Dolomite, 90 lbs.; limestone, 100 lbs.).....						
Total material cost for one ton of iron.....	\$21.71	\$24.34	\$21.54			
Furnace capacity in tons iron output per day.....	220	180	220			
Total material cost per day.....	\$4793	\$4381	\$4739			
Average value per ton iron produced.....	\$33.00	\$31.50	\$33.00			
Gross value of output of iron per day.....	\$7590	\$5670	\$7260			
Gross profit on iron output per day.....	\$2597	\$1289	\$2521			
(Labor, overhead, etc., not considered.)						
Gross profit on iron output per year, as above.....	\$908,950	\$451,160	\$882,350			
Total potash content of burden per ton of iron, pounds.....	99.50	34.43	33.97			
Deduct for losses in slag and elsewhere, pounds.....	20.96	31.28	23.46			
Potash remaining, unknown portion collectible, pounds.....	78.54	3.15	10.51			
Gross value potash at present price, \$5 per unit, 350 days taken as one year's operation:						
Equal to 25% water soluble.....	\$395,154	\$12,403	\$50,579			
Equal to 35% water soluble.....	\$553,216	\$17,364	\$70,811			
Equal to 40% water soluble.....	\$632,247	\$19,844	\$80,327			
Estimated operating cost per annum.....	\$165,000	\$165,000	\$165,000			
Estimated net value potash per annum—present 25%.....	\$230,154					
Estimated water-soluble percentage—present 25%.....	\$388,216					
Estimated water-soluble percentage—present 40%.....	\$467,247					

Potash from Grease Wood in Texas.

Sierra Blanca, Tex., September 27—[Special.]—Extracting potash from the common wild desert grease-wood shrub may be developed into a large industry in the Southwest, according to the statements of men who have conducted successful experiments in utilizing the shrub for this product. It is claimed that 100 tons of greasewood will give a yield of more than seven tons of ash, from which about two tons of potash may be extracted. The ash may be used in that form as a fertilizer. H. A. Smith of Tucson is promoting the establishment of a large greasewood potash plant near that place. John L. Forrester of Denver, Col., has been investigating the extent of the grease wood growth in this section with the view to installing a potash plant here. Millions of acres of land in the Southwest and Northern Mexico are covered with a dense growth of grease wood. In some instances several tons may be gathered from one acre. The candleilla weed, another wild desert growth of the Southwest, is also being utilized to some extent for its potash content after the valuable wax which it contains has been extracted.

Developments in New Texas Oil Field.

Hull, Tex., September 26—[Special.]—Another oil well of large flow has been brought in here by the Republic Production Co. under its development arrangement with the Houston Oil Co. This latest producer has a daily capacity of about 3000 barrels. The most significant thing about it is that the flow, which is larger than the other wells at Hull, was encountered at a depth of 2915 feet, which is more than 700 feet deeper than the other producing wells. The shallower oil sand was encountered in the new well, but was cased off in order that a test might be made of a possible deeper pool. The experiment proved highly successful. Another and still deeper test well is being put down by the Republic Production Co. at a point about 500 feet west of the east line of the 800-acre tract owned by the Houston Oil Co. upon which the other wells are located. This well is now down more than 3200 feet. Other wells are being drilled by different companies in the same section. These holes are at varying depths.

*MANUFACTURERS RECORD, March 29, 1917.

*All costs given in this paper are recent and are considered correct, but to be conservative from 10 to 15 per cent. might be added to the total.

*All figures on operating costs here given have been supplied by Mr. Porter and are based on actual practice at the 300-bbl. Portland cement plant of the Security Cement & Lime Co. Inasmuch as a 200-ton iron blast furnace, according to Southern furnace practice, handles approximately the same quantity of raw material as a 3000-bbl. cement plant, the cost of operation of a Cottrell electric precipitator should be approximately the same in both instances.

An Address by Colonel Theodore Roosevelt, at Baltimore, in Opening the Campaign for the Fourth Liberty Loan, September 28, 1918.

Today we are gathered to back up the Government in its call to our people to subscribe to the Fourth Liberty loan. It is our duty not only to subscribe to it, but to oversubscribe to it, and thereby to make our own men on the other side and our enemies on the other side understand how heartily and loyally the people of the United States are back of this war. Moreover, in asking our people to subscribe to this loan I am asking them to display wisdom, but not self-sacrifice. There are plenty of war activities where there must be some sacrifice. Of course, the men at the front and their mothers and wives at home are making the supreme sacrifice and are rendering the supreme service. All that the rest of us can do is simply to back up these men at the front. Of course, when we give money for war charities or cheerfully pay our taxes or do any of the hundred things we ought to do to aid in the war, we are making to some extent a sacrifice—although it is too trivial a sacrifice to be even alluded to in connection with the sacrifice made by the men at the front. But in subscribing to the Liberty bonds we are benefiting ourselves. The interest is good and the security is the very best in the world. Whoever subscribes is certain to get his money back, unless Uncle Sam bursts up, and in that event it won't matter, because every one of us will burst up, too. In other words, the security is the best in the world, and we are helping ourselves and encouraging habits of thrift and foresight and prudence at the same time that we are helping Uncle Sam. The bonds are so arranged that everyone can take them and every human being in the country ought to take either a Liberty bond or Thrift stamps. We should make the bondholders and the people interchangeable terms. It is not the obligation of the Government officials to raise and furnish the money. That, my fellow-citizens, is your obligation and duty. We must in the heartiest and most generous spirit raise the money. Then, when it has been raised, it is the duty of the officials to see that it is well and wisely spent.

It is our business to give the Government all the money it demands, whether in taxes or in loans. It is our business to back up every official, wholly without regard to party, so long as he does his duty efficiently in speeding up the war, so that we may secure the peace of overwhelming victory. It is also our business to see that every official actually does his duty and that of the money appropriated, every dollar spent represents 100 cents' worth of service to the army and the public. It is the duty of the executive officials of the Government to demand all the money that is necessary in order to render the great service that is necessary. It is the duty of the Congressmen to give this money freely, to back up the rendering of the service, and to insist that it be rendered; and it is also their duty to see that we get the proper return for the money spent. I don't care how heavy the taxes or how big the loans, I will not only stand for them all but insist upon them all, and I believe our people will stand for them all, right up to the bedrock dollar of the nation, if it is necessary in order to put this war through, until Germany is brought to her knees. But I believe I speak for the nation, and I know I speak for myself, when I say that we intend to see that the money produces the results. Therefore it is our clear duty to send to Congress men who will take this attitude. There must be no skimping, no niggardliness when the nation's honor and vital interests are at stake. Our representatives must give the executive officers all the assistance, all the money that is necessary. But it is their clear duty to investigate and supervise and see that the money is well and wisely spent by these executive officials, and that from now on our men who fight at the front are backed with the airplanes and the field cannons and the tanks and the machine guns for which we have paid.

It is no less our duty and the duty of our governmental representatives both to hurry up the war so that it may be finished as speedily as possible and also to show such foresight in preparedness that we shall be ready with overwhelming forces to fight it through, no matter how long it takes. We must be content with no peace except a peace dictated by the victorious Allies, a peace which will leave Germany and her vassal states powerless to repeat the hideous wrongdoing which for over four years has plunged the world into a sea of slaughter. We do not intend that Germany shall be oppressed, but neither do we intend she shall be able to oppress us. She must be punished, if the dreadful wrongs she has inflicted on France and Belgium are really to be righted. Therefore, the Turk must be driven from Europe and the races subject to him be given their freedom. Therefore, the Austrian Empire must be broken up and the German strangle-hold removed from Russia. All Roumanians and all Italians must be united to Roumania and Italy. The Jugo-Slavs, the Czecho-Slovaks and the Poles must be made into independent commonwealths; Finland, the Baltic provinces and the Ukraine must be made free not merely of Russia, but of Germany also. As for poor Russia herself, we earnestly wish we could help her. We will help her when she allows us to. She fought valiantly and suffered terribly during the early years of the war, while this nation was still neutral and was making a profit out of the awful struggle. But under the Bolsheviks Russia has become an ally of Germany—an enemy of the free people.

We are fighting for our dearest rights. We are also fighting for the rights of all people, small or great, so long as they are well-behaved and do not wrong others, to enjoy their liberty and govern themselves in the forms they see fit to adopt. We intend to try to help others, but we know well that we cannot do so unless we are able to do justice within our own borders and to manage well the affairs of our own household. Therefore it behooves us even now, while we are bending all our energies to winning the great war, also to look to the future and to begin to ponder the things that we must do to bring greater happiness and well-being and a higher standard of conduct and character within our own borders when once the war is through.

Surely, friends, all of us, and especially those of us who stay at home and who are denied the opportunity to go to the front, ought to realize the need in this country of a loftier idealism than we have had in the past; and the further and even greater need that we should in actual practice live up to the ideals we profess. The things of the body have a rightful place and a great place. But the things of the soul should have an even greater place. There has been in the past in this country far too

much of that gross materialism which in the end eats like an acid into all the qualities of our souls.

The war came—our gross ideals were shattered and the scales fell from our eyes and we saw things as they really were. Suddenly in the awful presence of death we grew to understand the true value of life. We realized that only those men were fit to live who were not afraid to die; that although death was a terrible thing, yet that there were other things that were more terrible, other things that made life not worth living. All the finest of our young men, all those of high souls, responded eagerly to the call to arms, the son of the rich man and the son of the poor man, side by side, neither claiming any favor except the chance to win honor and perform duty in the face of deadly peril. These men who have been going and are going abroad by the millions are sacrificing everything for the sake of a great ideal. They have shown their willingness to sacrifice money and ease and pleasure and life itself when duty calls and the nation bids them go.

Let us who are left behind in our turn strive to make our lives a little nearer the right ideal. Let us introduce into the work of peace something of the spirit that they have introduced into the work of war. When these men come home, or at least when those of them who escape death come home, I believe that they will demand and I know that they ought to demand a juster type of life, socially and industrially, in this country. I believe, and I hope, that they will demand a loftier idealism in both our public and private affairs, and better and more common-sense methods of reducing our ideals to practice and making them realizable. I believe that they will themselves show both idealism and also that common sense the lack of which means disaster in peace as in war. I think they will insist upon a livelier sense of brotherhood and yet will not less insist upon the duty of recognizing leadership. Let the difference of reward be as great as that between our generals and admirals, such as Pershing and Sims, and the warrant officers or senior non-commissioned officers under them. But let there be a better proportion than is now the case in industrial life between the service rendered and the reward given. Gradually I hope to see the wageworker become in a real sense a partner in the enterprise in which he works; and to achieve this end he must develop the power of self-control, the power of recognizing the rights of others no less than insisting upon his own; he must develop common sense, and that strength of character which cannot be conferred from without, and the lack of which renders everything else of no avail. Above all, I wish to see that farmers develop their strength by co-operation so that the elemental work of the soil will resume its ancient importance among us.

At this moment we can only lay the foundation in outline; but there are certain things that we should do at once in connection with the war. One of them is to stop all profiteering by capitalists, and another is to stop all slacking and loafing, whether by individual workmen or as a result of union action. Of these two, perhaps the profiteer is worse, but the slacker is almost as bad. As for the profiteer, any man who makes a fortune out of this war ought to be held up to derision and scorn. No man should come out of this war materially ahead of what he was when we went into it. There must be the reward for capital necessary in order to make it profitable to do the necessary work and to cover the necessary risks; this is indispensable, and the Government should see that neither demagoguery nor ignorance interferes with this necessary reward. But we heartily approve, as a war measure, heavy progressive taxation of all profits, beyond the reasonable profits necessary for the continuance of industry. Most of our captains of finance are doing with all their energy necessary governmental work without any financial reward for themselves. I honor these men, I honor their sons who have gone to the war. But I have scant patience with the other men who treat the war merely as a chance for profit; and I have least patience with the rich men who keep their sons at home. I will not excuse the poor man from going to war, but I would make it obligatory on the man who has much. As for the profiteer, if I could get at him I would like to put him to digging the front trenches. And I would put beside him his brother in wrongdoing, the slacker or loafer, the man who limits the output when it is necessary at this time that we should have the greatest possible production; and I would do this whether he was acting as an individual or an official or member of a labor union. Pershing's men are not limiting their output, and shame and disgrace should be the portion of any man who limits his output here at home.

In all things I would keep just as far from Bolshevism as from Kaiserism. In this country the Germanized socialists have shown themselves in their true light as the enemies of the republic; and I would permit no enemies of the republic to be so large while the republic is at death-grips with a foreign foe. I am utterly against every species of anarchy, and therefore I am against Bolshevism in all its forms; but I am equally against the gross industrial and social abuses which tend to promote the growth of anarchy and of Bolshevism and of Germanized socialism.

From the days when civilized man first began to strive for self-government and democracy success has depended primarily upon the ability to steer clear of extremes. For almost its entire length the course lies between Scylla and Charybdis; and the heated extremists who insist upon avoiding only one gulf of destruction invariably land in the other—and then take refuge in the meager consolation afforded by denouncing as "inconsistent" the pilot who strives to avoid both. Order without liberty and liberty without order are equally destructive; special privilege for the few and special privilege for the many are alike profoundly anti-social; the fact that unlimited individualism is ruinous in no way alters the fact that unlimited state socialism spells ruin of a different kind. All of this ought to be trite to reasonably intelligent people—even if they are professional intellectuals—but in practice an endless insistence on these simple fundamental truths is endlessly necessary.

Before our eyes the unfortunate Russian nation furnishes an example on a gigantic scale of what to avoid in oscillating between extremes. The autocratic and bureaucratic despotism of the Romanoffs combined extreme tyranny with extreme inefficiency; and the Bolsheviks have turned the revolution into a veritable witch

Sabbath of anarchy, plunder, murder, utterly faithless treachery and inefficiency carried to the verge of complete disintegration. Each side sought salvation by formulas which were condemned alike by common sense and common morality and which their own actions belied.

I believe that when this war is over we should prepare for our self-defense against other nations, and I believe we should prepare for our own inner development. And in order to meet both needs, I believe in the principle of universal service. Of this, military service is but a part. It is a vital part, and under no circumstances can we neglect it. But it is only a part. Universal suffrage can be justified only by universal service, service in peace and service in war. The man who will not render this service has no right to the vote. If he won't fight for the country in war and do his duty by the country in peace, we ought not to permit him to vote in the country. The conscientious objectors, who won't serve as a soldier or won't pay his taxes, has no place in a republic like ours, and should be expelled from it, for no man who won't pull his weight in the boat has a right in the boat. The Society of Friends have come forward in this war just as gallantly as they came forward in the Civil War, and all true believers in peace will do well to follow their example.

We now have an approach to the universal service which some of us have for many years been demanding. We now have all men from 18 to 45 required to serve their country, and required to register. Let us make this system permanent and let us use it for the purposes of peace no less than for the purposes of war. Let us extend the principle to women no less than to men. Let us have suffrage on service. Let us demand the service from women as we do from men, and in return give the suffrage to all men and women who in peace and war perform the service, and to no others. Base suffrage on service and not on sex. Treat it not as an unearned privilege, but as a duty which each of us is to perform in a spirit of service to all of us, and as a right which is not to be enjoyed unless the person enjoying it does his or her full duty in peace and war.

Universal training is a prerequisite for efficient universal service. It is just as much a prerequisite for efficient service in war as for efficient service in peace. It is just as much a prerequisite for women as for men. At this moment we have embodied in law the principle of universal military service for men, but inasmuch as there has never been universal obligatory military training for the service we now have to do all this training during the war itself. In consequence we were not able to exert any considerable fraction of our man-power until over a year after we went to war, and over two years will have elapsed before the proportion of our strength thus actually useable and used will be anywhere near as great as the proportion of the French, English or Italian strength thus used. This means that during the first year of the war we would have been absolutely helpless, and during the first year and a half almost helpless, against our antagonists if we had not been protected by the armies and navies of our Allies. In other words, while we were hardening our unprepared and helpless strength, and making it ready, we were saved from the strength and fury of our enemy only by the strength and valor of our Allies. We now have universal military service. If four years ago we had had universal military training, so that the service would have been immediately efficient when called for, the war would have been over within 90 days from the time we entered it, and infinite bloodshed and treasure would have been spared. Next time we may not have allies to protect us. And even if we do have allies, let us remember that our latent strength is such that if we prepare it in advance the chances are strong for our imposing an almost immediate peace in any conflict into which we are obliged to enter; whereas, if we do not prepare it in advance we are doomed to impotence in any war unless we have allies who protect us during the year or two we spend in hurried and extravagant effort to do what we ought to have already done.

I am not advocating Prussian militarism. I am advocating the kind of democratic preparedness which Switzerland has developed to her own great advantage, socially and economically, and with the result of keeping war out of her borders. I refer you to our own experience of the last year. I believe that our training camps have been universities of applied Americanism. I believe that for every young man between the ages of 18 and 20 to have six months in such a camp, which would include, of course, some field service, would be of incalculable benefit to him, and of like benefit to the nation. It would teach him self-reliance, self-respect, mutuality of respect between himself and others, the power to command and the power to obey; it would teach him habits of cleanliness and order and the power of co-operation; and, above all, devotion to the flag, the ideal of country. It would make him a soldier immediately fit for defense and readily to be turned into a soldier fit for offensive work if, as in the present war, offense prove the only method of real defense. I believe that every such man, after his experience in the camp, would tend to be a better citizen and would tend to do his own work for himself and his family better and with more efficient result. I believe it would help him in material matters and at the same time would teach him to put certain great spiritual ideals in the foremost place.

Incidentally, if I had my way, I would change the draft rules now, so far as giving any special privileges to the young fellows between 18 and 20 in the matter

of college training, to fit them to be officers. To say that the nation will pay for all of them to go to college is a deception, and to believe it is a delusion. I do not believe in a selective draft for a favored class. I wish to see fair play for the workman's son who has not had the chance to learn so that he can go to college, but who has the natural ability to command and lead men. Only boys whose parents, in the past, have had the money to give them a special education can enter college at the present time, and it is unfair to the other boys to give these a special advantage. Let all go into the ranks together and after six months or a year of service the best men to be chosen out. Of course, with the older men and at the beginning we had to take those already available. But when we come to need the young fellows under 21 let every man enter the ranks and stand on fair footing with everyone else, and be given promotion on his merits. Hitherto the men who came in under 21 came in as volunteers, and they were entitled to try for any position they could get, but now we have at last done what we ought to have done in the beginning. Now let them all stand alike.

Therefore, I hope that now we will make the system of universal military service and military training which we have introduced permanent, although, of course, in modified form. But I would not stop here. I would use the registration of all our men as a basis for further development for training and service in the duties of peace. I would register the young women just as much as the young men. I would give them both certain fundamental forms of industrial training—training in the things that are fundamental in the ordinary work of the ordinary man and woman in their business occupations and in and around their home; in the things which it is good for every man and woman to know. I mean certain forms of manual labor and mechanical labor for men and certain forms of household work and work outside of the house for women. The teaching in the schools should be only in English; in this country there is room for but one flag and for but one language. I believe in education. I believe in giving it free to every man and every woman, because I don't think we can have a successful democracy unless it is an educated one. I believe in making it obligatory so far as primary education is concerned; and I believe in making it possible for every man or woman who really desires it to have a higher education, but that this shall be permissive and not obligatory. Moreover, I believe that the education shall be an education not only of the mind, but also of the soul and the body. I think we should educate men and women toward and not away from what is to be their life-work, toward the home, toward the farm, toward the shop—and not away from them. I would use the introduction of a system of universal training and service as a means for securing this education.

I mention education only as one of the aims we ought to have in view in connection with universal training of our citizenship for service. There are very many lines of endeavor in such an effort of constructive statesmanship; for construction and not destruction should be the keynote of our policy at this time. Our educational system should deal especially with all immigrants; and a peculiarly important branch of it at the present time ought to be the training of the disabled and the crippled returning soldiers so that they may become not objects of charity, but self-supporting citizens. We should develop the water-powers under the Government, keeping ownership in the public and preventing the pollution of interstate streams. We should begin at once to take thought for the soldiers when they return; to develop national employment agencies for the redistribution of men after the war. We should enter on a course of taxation, purchase and development of land so as to give to the returned soldier who is fit for it the chance to do the most vital of all works, to till the soil on the farm which he himself owns; and we can treat this as a stepping-stone to further study of and action concerning country life and farm production so as to promote the growth and prosperity of the farmers who work hard on their own land. We must prepare our shipping for times of peace, and prepare to deal with the foreign markets situation, as part of our program of wise universal service, and, what is even more important, we can deal on a national scale with factory and industrial conditions, city and country housing conditions, child labor, and old age, health and unemployment insurance for workers. As for the needs of the moment, let us act with drastic severity, much greater severity than at present, against German spies and pro-German traitors. There is room for no half-and-half loyalty in this country; every man who has the slightest feeling in favor of Germany should be interned or sent out of the country, and if he is guilty of serious disloyalty he should be shot or hung. Let us go to the limit against every pro-German and in uncompromising insistence that we speed up the war and fight it through until we beat Germany to her knees and impose our own peace on her. But save in the case of spies and traitors and preachers of sedition, let us insist on a free press and free speech, for a free press and free speech are the foundation-stones of self-government by a free people. Let us make our belated intervention in Russia more effective both as regards military measures against the Germans and the pro-German Russians and as regards friendly economic relief and aid for the mass of the Russian people. Now is the time to accomplish constructive work which will make us strong for the conflict and able to deal with the aftermath of the conflict, and the step to be taken at this moment is to back up the fourth Liberty loan.

More Funds to Deepen Neches River Channel.

Austin, Tex., September 28.—[Special.]—In order to deepen the channel of the Neches River to the port of Beaumont from 25 to 28 feet, \$300,000 bonds of the Beaumont navigation district were recently issued. These bonds have just been approved by the State Attorney-General's Department, and as soon as they are sold the work of dredging the channel will be started, it is announced.

The Government appropriated \$500,000 for the original deep-water project for Beaumont, and an issue of \$500,000 in bonds was issued by the district, all of which was used for the construction of the channel. The \$300,000 is a further issue to carry out the plans of the district.

World's Biggest Box Buyer.

The United States Government is today the biggest buyer of wooden boxes in the world, and for that reason its officials are taking an exceptional interest in the subject of wood. They are not only seeing to it that the right kind of specifications are prepared for wooden boxes, but in addition are making sure that boxes that are manufactured will really do the work they are called upon to do.

The War Department has been training 20 lieutenants and 20 enlisted men at the forest products laboratory here to act as box inspectors. The Government is arranging a system of inspection which will guarantee that their specifications are followed to the letter.

What are known as export boxes are just now engrossing the attention of department officials because their specifications are more stringent than those for use in the manufacture of boxes in the domestic trade.

It is declared here that one of the most important things in connection with the world war is that it is bringing about the standardization of wooden packages for a great many lines. The Government is now making box specifications for any number of commodities; in fact, all commodities that are essential to the conduct of the war and the prosperity of the country.

The railroads and the box industry have been working toward packages standardization for years. When the war comes to an end it is believed that the country will find the biggest part of the job to have been done.

The War-Boom in Molasses and Its Influence on Southern Agriculture

By ANDREW WILKINSON of New Orleans.

The pressing universal demand for all possible varieties of food for the population and armies of the nations involved in the winning of the present world war has completely revived our Southern cane syrup and molasses industries, is largely increasing those products and adding many million dollars to their value.

The distinctively delicious flavor of nearly all of the molasses once made in Louisiana was mostly due to the large percentage of caramelized sugar that it contained. Formerly the bulk of the Louisiana sugar crop was boiled in cleaning and concentrating trains of huge open kettles set in fire-brick masonry over fiercely hot fires of cordwood. When the cooked concentrated syrup, or "masse-cuite," as the Creole sugar-makers called it, reached the point of crystallization in the finishing kettle or "batterie" its boiling heat exceeded 240 degrees Fahrenheit. At this point the thick, sizzling hot concentrate was run off into wooden "coolers" and left there about a week to cool off and crystallize. Then this combined mass of sugar (and molasses between its grains) was dumped by shovel-handlers into hogsheads with finely perforated bottoms, through which the molasses slowly drained by gravity into brick, cement-lined cisterns. When those old-fashioned hogsheads of sugar were drained dry enough they were headed up and shipped to markets from New Orleans to St. Louis and Cincinnati.

The molasses was baled from the cisterns into native cypress barrels and shipped to markets from Maine to Minnesota. Its sweetness was due to its containing nearly 60 per cent. of sugar, and its pleasant flavor came from the caramelization of much of its sugar by the very high heat employed in its crude manufacture. Our candy manufacturers apply the same agent in producing some of their most deliciously flavored confections.

In the seventies of the last century modern processes of manufacture were found much more profitable in the Louisiana sugar industry, and the larger proportion of the cane crop was thus handled, and soon not 10 per cent., probably, of the total crop of sugar and molasses was of ancient open kettle production. The sugar was concentrated and crystallized in one short operation of a few hours at 100 degrees lower temperature in the boiling of vacuum pans, and drained of its intercrystal molasses in a few minutes by steam-driven centrifugal machines, as all highly refined sugars are now drained, washed and dried.

But in this vacuum boiling process, requiring at least 100 degrees lower temperature for the entire operation, there is practically no caramelized sugar left in the molasses, and much more sugar is recovered from it. The crude highly-flavored open-kettle molasses contains 55 to 60 per cent. of sugar. By second and third boilings the vacuum pan reduces this unrecoverable sugar to 20 per cent. or less; hence, with this gain in sugar at the cost of the molasses, the latter became unfit or unpalatable for human food, and found a demand only from the manufacturers of mixed stock feeds and from distilleries.

In the early nineties of the last century this final reduced molasses of the modern Louisiana sugar factories sold as low as one cent a gallon delivered in tank cars, and tens of thousands of barrels of it were poured into plantation drainage ditches to get rid of it. Then its value (under the name of "black-strap") as cattle food and for alcohol production brought its price for about a decade up to 5 or 6 cents a gallon in tank cars. Finally the war, with its great demand for alcohol in munitions manufacture, suddenly bounced it over 20 cents a gallon, whence it later fell to about 15 cents.

With the marked decline in the production of table grades of Louisiana molasses came a greater increase in the output of the Corn Products Company, consuming annually many million bushels of corn and mainly producing an enormous quantity of liquid glucose, with by-products of corn oil and numerous "breakfast foods." Many people erroneously imagine that glucose is an unhealthful article of human food, but it is both wholesome and nutritious, although not as much so as cane-molasses. But, not being sweet in its pure form, its sale was mostly promoted by mixing it with cane syrups and molasses, maple syrup and honey.

This adulteration and diminution of the Louisiana "grocery molasses" supply led to the rapid extension of a small but promising industry in neighboring States. Long before a few farmers had found that tropical sugar-cane could be grown to sufficient maturity for making syrup as high up as the thirty-third degree of latitude. And during the past 40 years, while the Louisiana molasses supply was steadily declining, thousands of small farmers in the southern halves of Georgia, Alabama, Mississippi and in most of Florida have gone into making cane syrup to take the lost place of Louisiana molasses. Such farmers grind their comparatively limited cane "patches" mostly in their own mule-power mills, and some on toll in small steam mills, boiling down their syrup in open, fire-heated evaporators, with the high heat of the Louisiana open-kettle process, thus producing the desirable flavor and making a syrup equal to the best of the Louisiana grades.

These small farmers of the mule-mill class claim that their yield of syrup ranges from 300 to 500 gallons to the acre, and in exceptional cases reaching 600. Supplying a near local demand they formerly readily sold all their product at 50 cents a gallon. Now it goes as quickly at \$1 a gallon, producing a crop worth \$400 an acre, which acre, taking the average clean cotton yield of 200 pounds, would produce but \$100 with 50-cent cotton! Here is already another important element or contribution in national food production that the hypercritical Northern press has never credited to the South.

Now that all food products have reached positions of world-wide importance, these syrups and molasses are likely to be restored to at least their former maximum value, when molasses reached as high as 75 cents a gallon and cane syrups proportionately. With the best grades of grocery molasses selling at 60 cents a gallon, its price would be 5 cents per pound, as it weighs very nearly 12 pounds to the gallon. At that figure it should be considered a very cheap food compared with the present war cost of all other provisions. What the prices will be for the new crop, due to come to market, from Atlanta to New Orleans, in the next two or three weeks, is a question not only dependent on the popular demand but the decision of the National Food Administration.

The total saccharine crops of this country, estimated for this harvesting season, are 860,000 short tons of beet sugar, and by Government officials about 260,000 tons of cane sugar for Louisiana and Texas, with 300,000 tons estimated for Louisiana alone by planters and sugar merchants, making about 1,150,000 tons of home-made sugar, exclusive of Hawaiian sugar imports, to fill in the general home and possible Allies' export hiatus before the 4,000,000 tons of Porto Rico and Cuba combined begin to arrive, about three months from now.

The Louisiana edible molasses crop for this season, soon to begin coming in, is estimated roughly at 30,000,000 gallons, the largest for many years, as molasses reduction in sugar-making is not likely to be such an object this year; consequently more high-grade molasses will be made, and that would not reduce the pro rata of sugar to the consumers of the country, as they will get the extra sweets in the better molasses.

It is impossible to make any kind of an estimate of the farmers' cane syrup crop of the Gulf States. Most of them are so wedded to cotton culture and their labor is so familiar with it that it is difficult to wean them away from the fleecy staple, as demonstrated by the fact that, prompted by war prices, they planted enough ground to make a 16,000,000-bale crop, although, owing to lack of labor and timely rains, they may not make 11,000,000 bales, according to present calculations.

Where sugar-cane will grow to maturity and can be safely harvested for syrup manufacture, which may be commenced a month earlier than sugar manufacture, it is, under the present conditions, the most valuable as well as the most productive of the larger food crops grown on our Southern soil. Giving it the "small farmers" stated average of 400 gallons to the acre, ground in inefficient mule-power mills, that would represent 4800 pounds of finished clean food to the acre, and, valuing it at 60 cents a gallon, or 5 cents a pound,

against the \$1 a gallon gotten for it now, it would bring \$240 gross return per acre.

But for this war giving our American cane and molasses industry a fresh breathing spell, it would have been completely destroyed by unwise national legislation three years ago, and the hundreds of millions invested in our country's cane and beet-sugar factories would have been as dead a loss as those invested in the sugar factories of devastated Belgium.

A 16-Page Pamphlet Germany— The Super-Fiend

A Nation Gone Mad in Its
Lust for Power and World
Dominion.

A discussion of the Fallacious
Doctrine that "Might Makes
Right" and "As the State Can
Do No Wrong, if the State
Orders Crimes Committed, It
Ceases to Be Crime."

With a view to bringing important
articles and editorials bearing on the
subject into handy form for distribu-
tion, the Manufacturers Record has
republished in a single pamphlet the
following:

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Natural Product of German 'Kul-
tur.'"

"The Degradation of Childhood and
Womanhood by Germany."
By Dr. Anna Howard Shaw.

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Revelations of Germany's War of
Murder for World Conquest."
Including views of Otto H. Kahn, of Kahn,
Loeb & Co., and the revelations of Dr.
Muehlen, former director of Krupp.

"Trying to Repeat in America the
Ruin Wrought in Russia."

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the German Tiger Unto His Death."

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philosophy which led to Ger-
many's barbarism and presents
many other facts which should
be made known to every Ameri-
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and distribute it to your friends
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Oil Activity Around Nocona, Tex.

Nocona, Tex., September 28—[Special.]—The oil industry is brisk at Nocona and in this vicinity. The Beaver Valley Oil & Refinery Co. of Cisco, Tex., but formerly of Oklahoma, has found oil northeast of Nocona, and the Nocona Oil & Gas Co. has also a good showing in its well. There are six wells now drilling within a few miles of this place, and the Prairie Pipe Line Co., which is owned by the Prairie Oil Co., has about 200 men unloading pipe and placing it in position for the pipe line from Cushing, Okla., to the Ranger field, and thence to the Gulf of Mexico. More than 40 cars of well casing have been unloaded at Nocona in the last three weeks, and there are more to be unloaded.

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Sugar Scarcity and How Our Sugar Needs Can Be Fully Met by Developing Our Own Resources

A most interesting book entitled "The Sugar Situation" has been written and published by C. Lyman Spencer of Jacksonville, Fla., who considers our sugar supply from several angles, presenting many quotations and much data in support of his argument that particular attention ought to be given to the cultivation of sugar-cane, especially in Southern Florida, where, he says, the drained lands of the Everglades regions are capable of producing enormous quantities of the very best, although he does not omit due consideration of the sugar lands of Louisiana and other States.

Concerning the great need of developing our sugar resources he quotes Herbert Hoover, United States Food Administration, as saying:

"There is no sugar that would be available for consumption in the United States if our coasts were blockaded by foreign powers such as Germany's now are, except 1,000,000 tons of domestic production, representing less than 25 per cent. of the consumption of the country."

It is evident, therefore, "that every encouragement should be given to this, one of our most important domestic industries."

But Mr. Spencer's view of the possibilities of the situation is most encouraging, for he says in the preface to his book, which he calls a pamphlet, although it has about 90 very full pages: "The fact does not seem to be generally known that the area of suitable soil and climatic conditions for the production of sugar-cane is such that all of the world's sugar may be produced within the borders of the United States, at production costs so low that no other country can compete with us."

He points out the probable danger of the sugar situation after the war, saying that it is more than probable that all of Europe will annually purchase large quantities of sugar from Cuba, which will diminish our sugar supply from the island, these foreign purchases being necessary because, owing to the shortage of labor as a result of the war, the beet-sugar industry in Europe cannot be maintained on as large a scale as it was before the conflict. Moreover, our own beet-sugar industry has been suffering increasingly from labor difficulties, although in sections where farms are small and sugar beets are raised in tracts of only 3 to 10 acres per farm, and there are plenty of good farmers, the labor conditions are satisfactory. But in most of the beet-sugar regions he says it is necessary to depend upon labor brought in from elsewhere for the season.

Much less labor is needed to raise sugar-cane than to raise sugar beets, according to the author, who presents tables to substantiate his assertion. He says, for instance, that to produce the raw material necessary for the 4,396,898 tons of sugar consumed by the United States in one year (1914) would require 470,000 beet farmers, as against 30,000 cane farmers, while the number of the latter could be reduced by tillage and harvesting with machinery, and, moreover, to raise the necessary beet crops for that amount of sugar would require 2,900,000 acres of Western irrigated land, valued at over \$150 per acre, as compared with 1,046,659 acres of Southern muck land, valued at \$25 per acre, for the production of the cane for the same amount of sugar. Again, it would need 314 average Western sugar-beet factories to handle the crop, as against 70 factories for the cane sugar. Besides, much transportation could be avoided in the case of cane as compared with beets, the former having to be hauled considerable distances to the beet-sugar factories, while the cane-sugar factories could be so distributed through the cane-growing areas that no farm would have to carry its cane very far to a factory. And then in the case of cane a great saving is accomplished in fuel, for the crushed cane (bagasse, it is called) is used for fuel in the factories, thus saving as compared with beet sugar the use of either coal or fuel oil.

Concerning our sugar supply under normal conditions, viz., prior to the war in 1914, figures are given from Government sources showing that of the 4,396,898 tons of sugar consumed in the United States during the sugar year 1913-14, the great bulk of it came from countries outside of the United States, although several

of them are under our flag. Thus 2,426,584 tons came from Cuba, on which import duty had to be paid; \$936,376 tons came from Puerto Rico, Hawaii and the Philippines, this, of course, not paying duty; 733,401 tons came from American sugar-beet factories, and 300,537 tons was cane sugar from Louisiana and Texas. Thus practically 76½ per cent. of the sugar came to us in ships and more than 55 per cent. of the amount consumed bore an import duty. Only 23½ per cent. of the sugar was produced within the United States itself. Moreover, the great bulk of the molasses consumed in this country comes in ships, so that out of a total used in the same year (1913-14) amounting to 89,513,353 gallons, including the production in Louisiana, 72,335,910 gallons were from other lands. Conditions are such that we cannot look to the sugar-producing islands and other countries of the Pacific and Indian oceans to meet our increasing sugar requirements, and our sugar production has been falling behind our sugar consumption at the average rate of 123,000 tons a year, so it is apparent that if percentages are unchanged, "in 1923 the sugar consumed will exceed the total United States production by 3,657,464 tons, and the annual sugar consumption of the United States will reach the enormous amount of 6,352,938 tons. As a matter of fact, however, the same proportionate increase in sugar production will not be maintained, so that in 1923 the United States can reasonably expect to consume over 4,000,000 tons of sugar more than the sections named (the United States, Hawaii, Porto Rico and the Philippines) can produce." Cuba is omitted, as it was desired to show what might be expected from sources of supply in our own territory.

After remarking that Texas has been producing less sugar each year, the following illuminating facts about the work done in Louisiana are presented:

"For upwards of a century Louisiana has been experimenting with and studying sugar production. No other country has developed so many able scientists, chemists, engineers and experts in all branches of the sugar industry. No other sugar-producing country is as well located with reference to our great sugar markets. The Louisiana trained experts are found in all parts of the sugar-producing world. Louisiana trained brains had a large share in rebuilding the Cuban sugar industry, though the capital came from the North Atlantic. But with all the skill of her virile, intelligent sugar producers and experts, the Louisiana sugar crop of 1913-14 only exceeded the crop of 1861 by 30,000 tons. * * *

"Nor can we look to our insular possessions for any materially increased sugar supply. In the Hawaiian Islands the sugar industry has been fully developed, and the increased acreage which can be planted to sugar-cane is very small—almost negligible."

As for Puerto Rico, a Government report is quoted saying "that the mountainous character of the island, its impoverished soils, comparatively small in area, at most, and the 'almost universal anemia and ignorance of the class of labor upon which it has to depend' are obstacles which will prevent any substantial increased sugar production in Puerto Rico."

"The comparatively small amount of sugar in the Philippines is now and for some years to come will be cut off by lack of ships, and even though the ships were available, the high freight rate makes the sugar development of those far-distant islands impracticable."

On the subject of "war sugar" the following is of timely interest:

"All of the sugar factories in Cuba and Hawaii and practically all of those in Puerto Rico can make good centrifugal sugar, direct from the sugar-cane, which will be 96 per cent. pure or more and of standard color."

"By washing off the film of molasses which clings to the sugar crystals, while the sugar is still in the centrifugal machines, the purity of the sugar can be increased to 98 per cent. or more, and by adding rotary dryers to the factory equipment the sugars can be made 99 to 99.7 per cent. pure—the same purity as the white granulated sugar sold by the 'refiners.'"

"It is admitted by the American 'refiners' in paragraph 7 of their communication to Congress dated

August 21, 1917, that 'washed sugars are suitable for war-time consumption.'

"Unwashed Cuban centrifugal sugar was advertised as a package sugar under a trade name in a sugar-advertising campaign a few months ago. * * *

"These centrifugal sugars will not be white, but will have a slight yellow color, being nearly the same as the 100,000 tons of Louisiana clarified sugar annually marketed in the Mississippi Valley."

"Since it has been shown that bleaching cane sugar to a pure white adds nothing to its food value, but is done to satisfy the consumers' fancy or whim, there is no good reason why we should attempt to maintain a white sugar standard during the war. We have discarded the white color standard in flour and bread as well as in cornmeal in the South. Why should we make an exception in the case of sugar?"

"The conditions being as stated, the question of putting America on a colored sugar basis as a war measure is worthy of serious consideration."

"The 65,000 tons of Louisiana white granulated sugar, made direct from the cane juice, and the American beet-sugar crop (made white from necessity) would give us a white sugar supply of about one pound out of every five we consume."

"About \$75,000,000 of the amount now annually paid to the 'refiners' may be saved, and other millions may be saved in handling costs by the use of 'war sugar.' We shall be glad to have the Government add the amount thus saved to its war chest or use it in building an American sugar industry, as it deems advisable."

It is noted that the "refiners'" charges are \$1.30 per 100 pounds, or \$26 per ton.

In addition to the foregoing economies, fuel used in refineries would also be saved as well as the freight handling required to take the sugars to and from the refineries.

"If anything is to be done along this line it will be necessary to organize at once, in order that the 1918-19 sugar crop may be manufactured and handled on the right basis."

It is further stated that American capital is developing a great sugar industry in Cuba, beyond governmental control, notwithstanding the fact that in the same section of the world, but within our own borders, sugar may be produced cheaper than elsewhere on the globe. The United States Department of Commerce in its 1917 cane sugar industry report shows that in 1914, of the 176 Cuban sugar factories, 38 were owned in America, and that but three years later the Americans owned 64 of the 188 sugar factories and also had a part ownership in others. That in 1916 over half of the Cuban sugar crop was produced by American-owned or controlled factories. That the factories of Italian, German, Danish and Swedish ownership in 1914 and 1915 became absorbed in American or Cuban ownership in 1916. It is further remarked that American companies operate plantations and factories in every province of Cuba, and that within the past year another American company has been formed, which has purchased the plantations and factories of a large number of Cuban and Spanish estates, and these mills are being reconstructed on modern lines and equipped with American machines and apparatus; also that the Cuban sugar crop was increased from 340,833 tons in 1900 to 1,339,059 tons in 1906, an increase of about 1,000,000 tons in six years; that in 1915, ten years later, it had increased to 3,368,833 tons, and that it seems probable the large business units in control of the larger part of sugar supply, as well as its distribution, may eventually have direct or indirect control of the production as well.

On another page Mr. Spencer says "The development of the rich sugar lands of Florida will not be an experimental proposition. All of the essential elements on which to base a profitable sugar industry in Florida are known to the least detail. The plans for a sugar industry in Florida should include sufficient warehouse capacity in which the surplus sugar of harvest time can be stored to meet the mid-harvest season. By this means prices of sugar will be stabilized. In such warehouses, warehouse receipts can be issued for sugar and the financing of the sugar crop until it is required in the channels of trade can be just as easily arranged as that of the corn and wheat crops of Northern and Western elevators." Again he says "The very best evidence that can be adduced as to the practicability of a large cane-sugar industry within the United States is the fact that in the same section of the world, but 100 miles distant, our neighbor, Cuba, is producing high-grade

sugar cheaper than in any other section of the world."

In another part of the book the author considers sugar-cane culture already done in Florida, and he points out in a conclusive way just why a very conspicuous sugar-making enterprise some years ago failed of success owing to overcapitalization. The first cane sugar made in Florida was at New Smyrna before the Revolutionary War, about 1767, and other successful sugar plantations and factories established since then are noted and described. The processes of making sugar are fully told, with illustrations, and there is a map showing the sections in which sugar-cane can be grown with profit. In fact, there is so much information concerning the subject of cane cultivation and sugar manufacture in the book that it would be impossible to do it full justice in an article; the book itself should be read to be adequately appreciated and understood.

Potash from a Western Viewpoint.

El Paso, Tex., September 26.

Editor Manufacturers Record:

I have just read your recent number discussing the potash situation. Seventy per cent. of the potash is now coming from near Alliance, Neb., where there are some hitherto worthless alkali lakes. The water is taken from a stratum of sand under these lakes or ponds, and it contains 8 per cent. solids, nearly half of which is potassium carbonate. Wells drilled 200 or 300 feet deep fail to show any alkali. The lakes probably owe their content to the leaching of some stratum in the permain which exists in the vicinity.

The German potash industry was due to the information obtained from the sinking of the two deep shafts at Stassfurth. The subsequent finds were made by drilling, using a saturated solution of salt instead of fresh water, which dissolved the various salts and made it impossible to tell just what the drill was in. It seems incredible, but it is a fact that we have in the United States west of the river immense areas of the red beds utterly unexplored for potash, and they are known to contain all the other salts that exist in Germany. Forty thousand dollars has been appropriated annually to both the Geological Survey and the Agricultural Department, but this has been spread over an immense country. The former started a deep well to explore the Permain formation near Amarillo, Tex. You will find Bulletin 616, pages 221-228, of the United States Geological Survey worth reading.

The writer is a technically educated mining man of long experience who has seen a little of this alkali industry of late. It is moving west, but there is no venture money to be had except for oil now. Since the Goldfield excitement and the great swindling that went with it, even mine prospecting and exploring has ceased.

H. H. TAFT.

\$2,000,000 Steamship Boiler Factory at Richmond, Va.

A contract has been awarded to John T. Wilson & Co., Richmond, Va., for the erection in South Richmond of a boiler factory for the Newport News Shipbuilding & Dry Dock Co., this, it is said being let through the Emergency Fleet Corporation. The estimated cost of the plant and machinery, it is said, is about \$2,000,000. The plant will be built upon land recently acquired, but of sufficient size to permit of extensive enlargement when necessary. It was because of lack of room at the main plant at Newport News, it is explained, that a site at Richmond was bought for the boiler factory, which will make Scotch boilers for the ships built at Newport News. It is expected to complete the buildings and the installation of the machinery by next spring.

New Factory Ready and Capital Increased.

The soap and glycerine factory of the Magic Keller Soap Works, Inc., Louisville, Ky., for which the construction contract was let several months ago to the National Concrete Construction Co. of that city, is practically ready to begin operations, both buildings and machinery being complete. The company has recently increased its capital stock from \$300,000 to \$500,000. The new factory buildings and machinery cost about \$200,000. George G. Montz is president; W. S. Montz, vice-president; L. J. Kammerer, secretary, and R. M. Donald, manager.

World Readjustment After the War

SOME OF THE PENALTIES WHICH MUST BE IMPOSED UPON GERMANY

By HAL W. GREER, Laredo, Tex.

I.

At the risk of appearing trite I assert the conflict between autocracy and democracy was inevitable, and reached the climax in 1914 because of the universality of education. No intelligent person can endure the thought of bondage in mind or body, and too many people of both sexes became aware of the fact that sovereignty in any form did not necessarily imply intellectual superiority on the part of the sovereign.

Even in benighted Germany, where autocracy dominated all education as well as physical developments, and where under the doctrine of "les majesty," a most rigorous censorship sought to eliminate all individual thought as well as its public utterance, there trickled through to a few the knowledge that there was such a thing as liberty. This knowledge took the form of socialism, and was steadily growing and being spread among the masses. Therefore to check this growth, as well as to gather in the loot, war was the only outlet for the masters, the autocrats.

The German rulers and thinkers never pretended that their "Kultur" was based on either justice or morality, its one purpose being to create and foster the national theory that the Germans were supermen (they never consider their women), predestined to rob and rule mankind. If they could do this without murder and devastation it would be preferable, but if not—why, do it under the justification of "military necessity."

They further calculated, and correctly, that the prospect of sharing in the loot of the world would prove too great a temptation for the academic theorists, the socialists, to resist, and that they would prefer the national or racial pride of "supermen" to that of mere idealists over the desire for human liberty.

Therefore, waiving aside the pretense of extraneous political events, the time was ripe for the great denouement, the conquest of the outside world and the suppression of discontent within.

So war was declared against unsuspecting, and, as they thought, unprepared mankind. It was a deliberate purposeful act that their most accomplished liars cannot now contradict. They had sent their spies, both as subjects and as emigrants, into all lands under the sun. The emigrants called themselves German-Americans, German-Mexicans, German-Brazilians, etc. Never were they permitted to forget that the "Faderland" must always have their main allegiance, regardless of assimilation in other lands; their mental habit, their "kultur," must always keep in mind that they were supermen, and that all others were fools for failing to have been born in Germany.

"Kultur," however, overlooked one potent factor, and that was that culture would be substituted for culture in America, especially in the United States, in the second or third generations born in the adopted lands, and that these being born beyond the immediate influence of mental and physical training, so vital to the theory that it was right to rob and murder mankind, would learn the true value of freedom of mind and body. The result has been that 60 per cent. of the second generation, 90 per cent. of the third and all of the fourth are really Americans and anti-German in both thought and ambition. The "Faderland" has lost all significance to them, except in isolated communities where they colonized themselves and continued their own language and customs. Today, if you read the roster of the United States soldiers in France, you will find a large percentage of German names among them, and they are just as patriotic, just as faithful, just as brave as those having the names of a long line of American ancestors.

So the German idea that once a German always a German has received a very severe jolt, and they now realize the hyphen has been changed to American-German, imbued with our spirit of liberty and an increasing growth of justice.

The discovery that their visitations, official and individual, to other countries was an organized system of espionage upon all governments and all people, at once proclaimed them the enemies of mankind as well as advertising their unscrupulousness. Even their ambassadors and high consuls were nothing more than the

heads, furnishing meeting-places for spies, and the concoction of fresh villainies. All of which goes to show we can never again have treaties and the integrity of national courtesy with them—not at least until they have become civilized, as will be more fully hereafter set out. We must treat them as outlaws against common decency, for their pledged written word is not but "a scrap of paper," and their theory of how to deceive and lull an unsuspecting victim into a false security whilst they prepare to assassinate. This renders overtures at peace impossible. Our peace must be through their abject defeat and unconditional surrender and full indemnity to Belgium, France, Serbia and every country they have despoiled. If it were not for the loot they have taken as well as from the unhappy people they have overridden, they would be defeated today, and it is the solemn duty of ourselves and our Allies to see that they pay more loot. Their training is impossible to treat otherwise than by subjection.

And when the war is over shall we again wage in trade with them?

II.

Their spies reported to their masters that Germany could not afford to take up the cudgels for Belgium and France, because India was ripe for revolt, that South Africa was eager for revenge; that Ireland was already in a state of rebellion; that internal dissensions in Australia and Canada rendered them unreliable, and that all other colonies were discontented. They reported that German-Americans in the United States would see to it that we gave no assistance, as to Mexico and the Central and South American republics, Germany could count on their having a jealous and hostile feeling against the Americans, the English as to make them wholly neutral or German supporters. They even went to the extent of reporting that if the United States should get restless over their contemplated "frightfulness," the negro would join with the German-Americans in rebellion.

All a very rosy picture from their point of view, their propagandists, both in the United States and Central and South American republics, were very busy spreading pro-German lies in the effort to cultivate public opinion against Great Britain, which they also called "England."

But "frightfulness" jarred the Western Hemisphere except the wretched land of Mexico (which had no commerce), out of its indifference, and we clearly saw where the menace was reaching. Their miscalculations as to India, South Africa, Canada, Australia and other British colonies, with the possible exception of emotional Ireland, showed the depths of folly to which the German mentality will go.

True, we were all an unsuspecting people, and were unable to imagine the depravity they have since resorted to on the part of a people whom we thought and believed were civilized. But we have had our awakening, it is true, but not too late, and today we have 1,000,000 men in hard-pressed France, with millions more to follow. We are sweeping the seas for pirates. And right here I wish to say I do not understand the leniency of ourselves and our Allies in dealing with these pirates. Instead of treating their captured crews as prisoners of war, every scoundrel of them should have rocks tied to their necks and their bodies sunk to the bottom of the ocean. In fact, we ought to take no prisoners on land or sea until every German soldier and sailor is back within the confines of his own country, and has given up Alsace-Lorraine, and the boys should be instructed to die fighting; for the Germans have placed themselves beyond all consideration of mercy by murdering the men, women and children of Belgium, France and the other countries they have pillaged and devastated. It is a mistake to suppose we are not fighting the German people. If they are willing to be handled as sheep in the shambles by their masters it is because of their desire to share in the loot under their kultur and training—they are not human beings.

As they have shown no mercy in Belgium, Northern France, Serbia, Roumania and on the high seas, we should show them none, for under their kultur men

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is a matter of childish sentiment that must not be permitted to interfere with their murdering, ravishing and robbing weaker people; and they had no scruples about executing old men, boys and women in the countries they desolated. Give them a dose of their own medicine, "frightfulness," and possibly a conception of its enormous turpitude may trickle through their dull and stupid mentality. Realization of its enormity may cause them to see that humanity can be resentful when pushed to the test. So we should show them nothing but death until they are back beyond the Rhine. Caesar knew them when he said, "I will only listen to overtures of peace when you are back in the confines of your own country." For a thousand years it has been the practice of these conscienceless Huns to ride forth, at what they deemed auspicious times, and murder, rape and rob weaker people, and it is now time that they should be forever stopped from this habit.

So, one of the first duties of readjustment must be this: Until they relieve themselves of turpitude, in all its phases, the people of Germany, Austria-Hungary, Bulgaria and Turkey must be put under the ban of all civilized people. This means:

(A) That they must destroy every vestige of monarchy among them, and become in truth republics fashioned after France, Switzerland or the United States.

(B) They must disarm all militarism and be put under a protectorate or board of governors furnished by all the Allies until their militarism is destroyed.

(C) They must devote at least 50 per cent. of their taxes for not less than 50 years to come towards rehabilitating Belgium, France, Serbia and the other nations they have outraged.

(D) They must surrender all of their belligerent navy, and will only be permitted such ships of commerce as we and our Allies may license.

These reforms they must accomplish inter se, and with our supervision, and until then we must use harsh measures, to wit:

(A) They must, only to the limited extent of the vessels licensed by us and our Allies, be forbidden the use of the high seas until with their ships so licensed they have taken and delivered to us or our Allies all the mines they have strewn in the waters of the earth.

(B) They must destroy all their fortifications and all munition factories of every kind.

(C) They must not be allowed to send emigrants to any country in the world until they have made all the reforms stipulated above as accomplished facts, and even then they must not be allowed to form colonies or teach their language in any country to which they emigrate.

(D) They must not be allowed to retain any of their colonial possessions until they have made the reforms so outlined.

(E) Until these reforms are accomplished they must not be allowed to own property of any kind in any other country; nor shall they be permitted to engage in commerce or trade with any other country.

In other words, they must be kept under the ban of the civilized world until they have proven themselves worthy to once more associate with their fellow-men. They will then for the first time in their history become a free people, and only free people are worthy of trust and confidence.

III.

If this great cataclysm shall be guarded against repetition, then the civilized nations (which will, of course, exclude Germany, Austria-Hungary, Turkey and Bulgaria for many years to come, possibly half a century) must form an international association, both for the purpose of settling all controversies between themselves, as well as in announcing international law; and this association must be clothed with the power to enforce its decrees of adjustment, and also its promulgated international laws. Most of these laws already have a recognized definitive status, and the international association can proclaim others and submit them for ratification to the various subscribing nations.

All treaties between nations should be required to be published for the benefit of all other nations. There must be no secrecy of any kind in international relations, and this will require readjustment along a wide sweep never known before.

But the most important and far-reaching of all reforms will be that no government can ever again lend its power to selfish purposes. The formation of classes, should any be left, must be by voluntary selection without legal recognition.

But the greatest of all and beyond all must be free

education for all children. No child has been brought into this world by its own wish; it is not responsible for being here; therefore, every child is entitled to happiness in childhood as well as in the acquisition of knowledge, as a matter of right.

All the injurious effects against human advancement and progress, and all the advantage of acquiring wealth through the labor of others has been due to lack of education—mulcting ignorance. If we who are fighting for liberty and continued peace are not great enough to recognize the necessity for these reforms, then our sacrifices will have been in vain.

The Moral Welfare of Soldiers in France

[The following letter from Rev. O. C. S. Wallace of Montreal, and formerly of Baltimore, who has recently returned from a three months' study of war conditions in Europe, will be of interest to every man and woman who has some loved one in the army.—Editor MANUFACTURERS RECORD.]

You ask me to say more about the moral and spiritual conditions among our soldiers in France. I gladly comply with your request. The theme is a congenial one.

Several things need to be kept in mind. The first is that many soldiers were of irregular habits before they went overseas.

The second is that many people away from home are more careless than when at home. I was attending a convention in Kansas City a few years ago, when this incident came under my observation: Three Baptist deacons, instead of attending the session of the convention on Sunday afternoon, went to a baseball game. It is unthinkable that these deacons if at home would have done this thing. Now, if Baptist deacons away from home sometimes behave inconsistently, it need not be a matter of surprise if young and thoughtless men do things they should not do.

The third thing to be kept in mind is that when masses of men are assembled far from the restraining influence of home, and where temptations make a sharp onset at the points where they are weakest, it may be expected that some will fall who at home might not fall.

The fourth thing to keep in mind is that the soldiers are fed and trained to be in the pink of physical condition. The current of their physical forces is flowing like a swift, strong river. As one expressed it in my hearing in France, "they are like fed horses." Under these circumstances they are peculiarly exposed to "sins of the flesh."

The fifth thing to remember is that the soldier's life needs to make him daring. He is not in a normal frame of mind. This is as true when he is on leave as when he goes "over the top." There is a certain rashness in his temper. This, under certain types of temptation, may lead him into paths which under normal conditions he would shun.

Having in mind such facts as these, I have on occasion, since the war began, warned our people not to expect too much of the returned soldiers. I have said that they, when they came back, would be of three classes: First, those made worse or weaker by their experience overseas; second, those who had about held their own morally, and third, those who come back better and stronger men than they were when they went.

After studying the Canadian soldier in France, and conferring with men of all ranks, I am prepared to reaffirm what I have been saying in the past, but to modify the emphasis. I now believe that the third class will be far greater than I formerly believed it could be.

Some have become worse or weaker during their years abroad. I saw an officer lately who has been returned to Canada because he is of no use. He is a dipsomaniac. It is a pitiful case. But the war must not be blamed altogether for this tragedy. It may be that he would have been a dipsomaniac by this time if he had remained in his own country. We cannot tell what will happen to a drinking man if he is where he can get drink, whether in Canada or in Europe. It is undeniable that officers can get drunk in England, though not at all to the extent that many people suppose. I saw also a "dope fiend." This was the phrase in which he was described by the physician who spoke to me about him. He was an American. He said he was suffering from shell shock, and took morphine to induce sleep,

If public policy again revives the drinking saloon, then once more will follow corruption in office and the other long train of vices that support them.

The conclusion is the democratic governments of the earth must be unselfish, as such, or history will repeat itself.

Too much space has already been consumed by this paper, but, without going into details, we must make provision for the employment of all soldiers, etc., who return to us unharmed, and we must make provision for those bereft of limbs and the like, as well as for the orphans of those who never return.

and that in this way he had contracted the habit. Perhaps his story was true, but "dope fiends" are often ingenious liars. It seemed to me likely that this man was addicted to the morphine habit before going overseas.

These two cases are cited to indicate what is liable to happen, and yet it is suggested that we be on our guard when viewing a moral wreck lest we blame Europe and the war for what was done, or largely begun, in America before the war. Let it be admitted, however, and with tears, that some who have gone overseas with good habits but defective principles have made shipwreck of all that is sweetest and holiest in life.

Because of the moral danger to which our boys are exposed, parents, pastors and all others who teach or influence men, should do their utmost to enlighten them as to the evils they will encounter and strengthen them in the principles which would be their safeguard.

Some have held their own morally and religiously who at first may not seem to have done so. In some respects they are less punctilious than they were before they went to the war. They have lost something of the refinements of character which were associated with their former moral and spiritual standards. The roughness of their life has produced this change. A man whose business it is to dodge death daily and to inflict death, if he can, upon others inevitably loses something of the finer feelings which make for beauty of character. But with this loss there is often a corresponding gain. Heroism has increased, and has been developed with self-forgetfulness and modesty. Devotion to a great unselfish ideal has made for a willing self-sacrifice. When men have learned to offer their lives without reluctance in defense of a high humanitarian or spiritual ideal, something great and good in morality and in religious feeling may be predicated. We are therefore to be careful, when we observe that something has been lost, not to conclude that in its totality this man's character is worse than it was before.

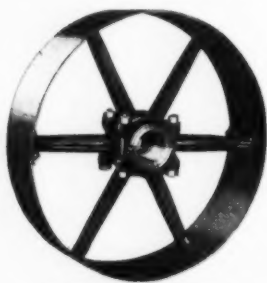
Concerning the third class, those who have become greater and better as a result of their experiences in France, one must write with enthusiasm. Officers of high rank have given me their opinion on this point with earnestness, yes, with eagerness. They wanted me to believe, and tell as widely as I could, that their soldiers were better men than when they went overseas. I have in mind as I write two men, each of very high rank, each a religious man. Both these men led the conversation to the subject of religion. Each of them was emphatic in his statement that the Canadian soldiers not only were behaving well morally, but that these men would make a great contribution on their return home to all that was best in our Canadian life.

I have delightful memories of scenes which will be sacred always with me. Here is one: One beautiful Sunday evening I addressed the men of a certain battalion, Highlanders, "kilties," beneath a great tree in France. The most of these men were from my native province of Nova Scotia. We sang hymns. Standing in the center of the group, and leading in the singing, were two stalwart men, brothers. The older brother was a colonel, and the younger a major. The colonel was the officer commanding the battalion. The major was the second in command. The colonel was a member of a Baptist church in Nova Scotia. The major was a member of the church of which I am the pastor. Very reverently did they join in that worship with their brothers in arms. No one needed to ask whether religion had a great new reality to them. Today the older brother is lying in a hospital. He was wounded in that battle of Amiens for which the Canadians were

(Continued on page 92.)



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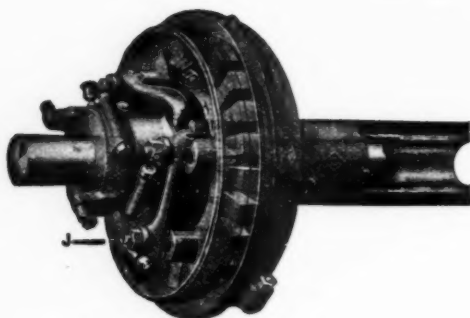
Keystone Steel Pulley.



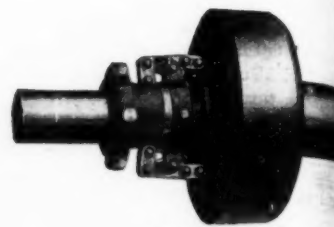
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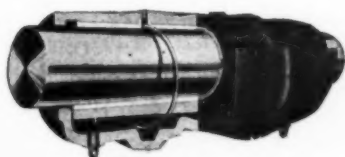
Clutch.



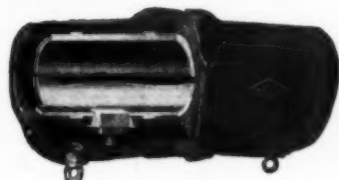
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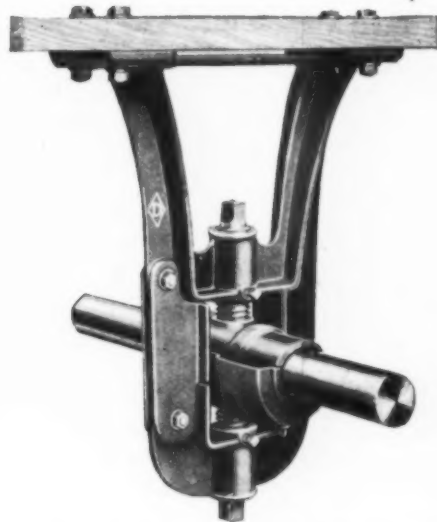
Ribbed Coupling.



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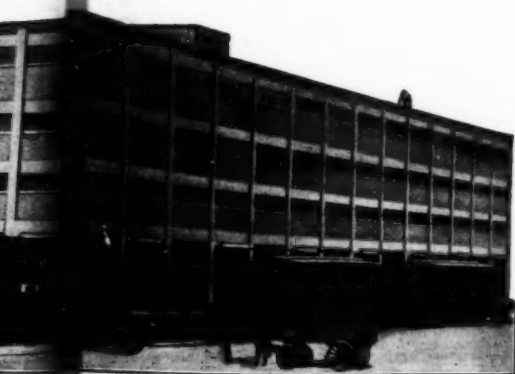
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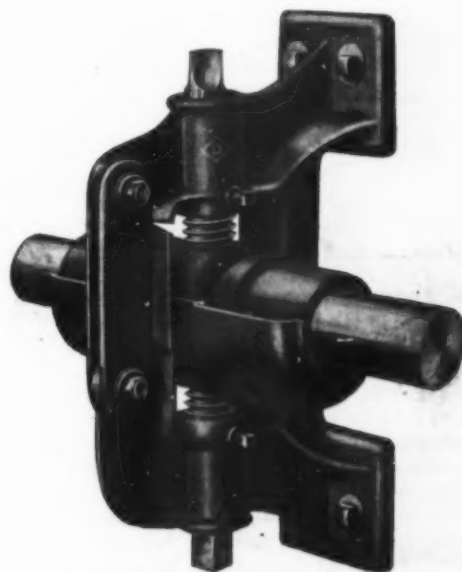
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Adjustable Ball and Socket Post Hanger.

The Moral Welfare of Soldiers in France.

(Continued from page 89.)

preparing when I saw them in France. His brother was killed. This their devotion, this their sacrifice.

Another instance: Last night I gave a message to a beautiful young woman, one of the singers in my church. It was a message from her sweetheart. "Tell her," he said to me, "that she need not fear that I shall fall before temptations over here. I have been a Christian nine years, but never did Christ mean so much to me, and never did I know so well what spirituality means as since I enlisted for this war." Never shall I forget his face as he looked into my eyes yonder in Europe, outside a Y. M. C. A. tent, and said these words to me. And never shall I forget the radiance of the face of her who heard this message as with swimming eyes and heaving breast she answered, "I do not fear. I know him."

There are, I believe, many thousands of cases like this among our Canadians and many tens of thousands among the Americans; yes, multiply these numbers by ten, and still you are far short of the inspiring facts.

Coming home I talked on different occasions with a young American. He was one of a group of four navy signallers. I commented on the fact that they did not use foul language—their cabins were near mine and I could hear their conversation. "No," said he, "what's the use?" Then when he grew better acquainted he showed me the picture of his sweetheart as I told me frankly what kind of a life he was leading. It was a clean life. Three of these four boys were avowed Christians, manly, clear-eyed, bright-faced American boys, one of the four from Iowa, one from Minnesota and two from Florida—the kind of boys that mothers and sweethearts can trust.

These boys, and boys of their kind, will not become drunkards; they will not gamble; they will not be enmeshed in the webs spun by the huzzies of the streets. And, resisting temptation, they will grow to something nobler than they were. Of boys like these there are multitudes. The boys in greatest danger are those who have gone away from their homes without well-established principles of morality and religion.

The present great emergency calls insistently for the most earnest teaching of morality and religion that it is possible to give. This is an insistent call to the churches. It is also an insistent call to parents.

O. C. S. WALLACE.

Westmount, Montreal, Canada.

Big Barracks to Be Built in Texas for Invalid Soldiers.

Prescott, Ariz., September 28.—[Special.]—Invalid soldiers are to be cared for in large numbers at Whipple Barracks. It is officially announced that a group of 31 frame buildings will be erected immediately for the accommodation of the physically disabled soldiers belonging to different branches of the army. An expenditure of approximately \$1,200,000 has been authorized for the construction of these buildings by the War Department, and orders have been issued for the assembling of 600 carpenters and other workmen for the prompt carrying out of the plans that have been adopted. It is stated that these laborers will be accommodated in temporary barracks. The new buildings will provide accommodations for more than 1000 convalescent patients, 500 officers, surgeons and attendants.

SPREAD THE FACTS EVERYWHERE.

If your soul is stirred by the awful realities of Germany's barbarism as published from week to week in the *Manufacturers Record*, pass your copy on to others that those who are not subscribers may learn the fearful realities against which our nation is fighting. Let no single copy be wasted. Pass every copy on to someone else and urge them to send it on to others, that in every home the story as given in every issue of what this war means to every man, woman and child in this and in every other land may be fully understood. Not until then will our nation awake. You can help in this way to win the war.

Shall We Batter Our Way Across the Rhine With Explosives or With the Bodies of Our Men?

By CARROLL E. WILLIAMS, Brooklyn, Md.

If complete victory for the Allies comes next year—as prominent figures in France, England and the United States confidently predict—there must come the most far-reaching changes in our industrial life, for unless we intend to sacrifice thousands upon thousands of young American lives they must be assured an endless and ever-increasing supply of the necessary commodities of war. The time is now ripe for a rejuvenation of the industries engaged in manufacturing the war essentials. We must begin now—not tomorrow—to reach the maximum of production in every necessary line. For every ton of powder turned out, for every ship completed, for every gun placed in France, for every aeroplane assembled, for every bomb made, has a value expressible in terms of man-power. What shall we do in the coming spring fighting? Shall we use the maximum number of men with only part of the essential equipment and supplies of modern, scientific warfare? Or shall we use a minimum number of men supplied with a maximum quantity of war commodities? We must choose of the two. Today we have the opportunity to choose! If we delay until next spring we must of necessity choose the only alternative that then presents itself—a maximum number of men backed by what supplies we may have accumulated by no especial efforts on the part of those engaged in the industries.

Unless we are pro-German at heart, unless we care to see our manhood needlessly sacrificed, unless we do not feel that those at home should do their utmost toward winning the war, we will choose to defeat our enemies by man-power backed to the limit with supplies of all kinds. But we must not delay. The time is now ripe for the output of products which will enable the complete overthrow of militarism next spring. First of all, we must get out of the way those things which would in any way impede the fulfillment of a maximum production program.

Let us forever crush the misleading propaganda of Germany's campaign of deception as to its military strength and conditions there. We must labor endlessly to destroy any thought that Germany is near collapse; that she is willing to accept peace terms except as dictated by the Allies after complete and decisive victory. We must not slacken in our efforts at each Allied success, no matter how great it may seem to be. Instead, let us put forth greater efforts to accomplish greater things and thereby prepare for a desperate and long struggle. Far better for us that we should overestimate the strength of our enemies than that we should underestimate them.

We must be always alert for Hun propaganda spread throughout the country in scores of channels so that the average industrial worker does not recognize it as such and accepts it as truth. Particularly are German sympathizers at work, now that the recent new drafts are taking thousands and thousands of men from the industries, attempting to show that American women are not fitted to work in the industries as their Allied sisters, and that the manufacturers really do not need their services, but would hire them at low wages to replace high-salaried men. This insidious propaganda is greatly retarding our production efforts, in that thousands of women who otherwise would quickly answer the urgent call for women workers in munitions factories are remaining unemployed. In congested industrial centers, especially where there are not now enough houses for workmen and their families, the response of women workers will greatly relieve the labor situation and not cause a further congestion.

The propagandists have been specially attentive to casting reflections on the management of the Ordnance Department and other branches of the service attempting to show that the service is made up of "slackers" who are poorly managing affairs. This campaign has succeeded in causing hundreds of valuable engineers, chemists, inspectors and draftsmen to give up important positions and enlist. One paper went so far as to print the names of all the draftsmen employed in one department. As a result, there exists today the most acute shortage of skilled men in many departments of the service, for no other reason than that those men who held these positions have enlisted primarily to prove that they were not "slackers." Many of these men work under the most trying conditions. Having given up splendid positions to take these war-

time jobs at greatly reduced salaries, they must stand the jeering and slandering of the pro-Germans. The Government needs these men in the branch wherein they will give the most valuable service. We must with one accord agree with Lloyd George, who has refused to recognize any distinction between combatants and non-combatants.

We must hush all peace propagandists. The American people must not hope for peace or talk of peace except associated with the unconditional surrender of the armies and navies of our enemies. In the past peace talk has done much to impede production in the essential war plants. We must see that this does not occur again.

The cry of our people must be "on to Berlin, with maximum output of every necessary industry and the maximum effort of every one at home behind the Government."

The maximum effort of the Allies must be made early next spring. The first requisite for success is that we must immediately establish supremacy of the air and maintain it. If we can do this one thing we will be able to utterly defeat our enemies, utilizing a minimum number of men with a comparable quantity of fighting supplies. A well-known general once said that the most successful army was the army that knew the most about the opponent and allowed the opponent to know least of him. We must apply this principle and enforce it by mastery of the air—not by mastery on a certain front or a contested mastery, but a complete and overwhelming air supremacy.

One fact stands out vividly in the recent successes of Allenby in Palestine. He had "complete supremacy of the air and maintained it." News dispatches add further: "The British mastery of the air prevented enemy observers from seeing any change in the dispositions and the movements of large columns. But he remained mystified, which is the best tribute that could be paid to the British Staff." Writing in the Independent last April Henry Woodhouse, vice-president of the Aerial League of America, in referring to the big German drive, said: "Had the Allies 1000 more aeroplanes we could easily have defeated the Germans. They could have done more than 500,000 additional soldiers or anything else that the Allies could have had." The Marine Record of April 8 has this to say of the aeroplane: "The seaplane comes in to do the work of half a dozen battleships, and will prove to be the most deadly enemy that the submarine has." And about that time a report from the British Admiralty showed that their seaplanes had sunk 10 U-boats within a short space of time. Early this year Major Joseph Tulsam, chief of the French Aviation Mission to America, writing in the National Geographic Magazine, said: "A powerful bombing fleet, no less than a grand battle fleet, is essential to success, and both should be ready in the spring."

Our aeroplane program has passed the experimental stage and its successful fulfillment should proceed unhampered. The Liberty motor has been found specially suitable for use in heavy bombing planes and seaplanes especially, and with quantity production forthcoming it seems that our needs along these lines will be adequately supplied, and we will be able to turn over many motors to our Allies. But for other types of planes we must look to Allied countries for models and designs, and we have adopted several, such as a single-seat fighter and pursuit plane and artillery control plane.

If we are not able to make enough along these lines our Allies will probably supply the deficiency, since we are able to produce training planes and suitable motors here in enormous numbers using primary training planes with Curtiss and Hall Scott motors, and advanced training planes of four different types using Gnome, Le Rhone and Hispano Suiza motors, all of foreign design but built in America.

It is predicted that the bombs designed and manufactured in America for the first time will surpass any design of our Allies or enemies. The first bombs entirely of American manufacture and design are now being given thorough tests at the new aviation grounds at Aberdeen, Md. Our plants will, it is said, be able to turn out these bombs and also bombs of foreign designs to not only meet our own needs but to help supply other Allied air forces. Many persons predict that the use of gigantic bombing fleets against Germany will undoubtedly win the war. If this be true, then America is on the right track, since the Liberty motor cannot be excelled for heavy duty, and with them used in Handley-Page bombing planes, designed by the British and believed to be the greatest bombing planes of the

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war, and with the most powerful bombs ever manufactured we should harass the entire enemy country and armies continuously.

The achievements of our ordnance producing plants has been marvelous, but from now on they will be called upon for far greater accomplishments. While we have not yet reached maximum output in all lines of ordnance materials, complete gun plants begun since the war are already in operation and turning out products, having completed the organization of the business. Shells of all calibers are being turned out in quantity production; the new anti-air craft and anti-tank guns have been successfully developed and are being rushed to the front, as are machine guns, small arms, cartridges by the millions and big guns of the largest type. Those plants which have already reached maximum production are being carefully surveyed by efficiency experts who are now devising machines and automatic devices of all kinds that will make for increased production, utilizing the same space and the same or a less number of men and otherwise rearranging the operations for efficiency. In some cases these methods have netted an increased output as great as 25 per cent., and they are being further developed so that even greater results are looked for. The manufacture of shells of semi-steel, so extensively used by the French since the outbreak of the war and its manufacture perfected by them, will soon begin in enormous quantities here, and thus add to our output. Thousands of women are being trained to take the places of men in every branch of the work. By working hand in hand with the Allied developers rapid strides have been made possible and we have profited and succeeded by avoiding the mistakes they made but later corrected.

One might say that the war depended primarily upon ships—that is, ships of the air and ships of the sea. But unless we have the necessary ships to carry supplies and men to France our efforts will be of no avail. The shipbuilding program has been specially successful, but more and more ships are necessary. England has aided us greatly in getting men and supplies to France, and we must make every effort to return these ships to her for her own use as speedily as possible. The output of fabricated steel ships this year will be small, but next year it will increase with leaps and bounds. The new yards now under construction will be ready for complete operation, the thousands of new employees will be experienced and necessarily more skilled in ship construction, and efficiency methods adopted will speed production. The submarine menace has more and more decreased with the extensive use of depth bombs, submarine chasers, torpedo-boats and aeroplanes, and methods of detecting the presence of the U-boats. Thousands of young men are being trained to man these new merchant vessels, transports and cargo carriers without delay. The plants engaged in turning out the machinery will be operating on quantity production shortly. Hence the various hindrances to the fulfillment of a mammoth shipbuilding program have been one by one partly or wholly removed, and ships will be supplied for most needs.

Investigating Cut-Over Pine Lands for Possible Purchase by Government.

Austin, Tex., September 28.—[Special.]—D. W. Ross and P. A. Welty, engineers in the Federal Department of Labor, have been conferring with the State Board of Water Engineers here in regard to the possibilities of irrigating large tracts of cut-over lands in East Texas as a part of the Federal Government's plan for affording employment and vocation to large numbers of soldiers when the war is ended.

Messrs. Ross and Welty stated that they would make an investigation of the cut-over lands of East Texas with the view of determining the practicability of their use for agricultural purposes by the Government. Some of the lumber manufacturers as well as other interests own large tracts of land from which the timber has been cut. It is purposed that this land shall be purchased by the Government and divided into farming areas and distributed under some method yet to be agreed upon among the unemployed soldiers after the war.

Secretary of Labor Lane recently recommended that large tracts of land be acquired by the Government and disposed of to soldiers after the war. This met with the approval of President Wilson, and an

investigation and survey was ordered to be made through the reclamation bureau of the Department of Labor.

Mr. Ross said the plan of the Government is to ask Congress for an adequate appropriation to purchase the land and then dispose of it to those soldiers who may want to engage in farming when they quit soldiering. In Australia, he said, such a plan is already in operation, the Government having appropriated \$100,000,000 for carrying on the work.

The Development of the Ferro-Manganese Industry in the United States Since 1914.*

Prior to 1914 the United States produced less than one-half of its ferro-manganese requirements, and in 1914 only 54 per cent. out of a total of 183,728 tons of ferro-manganese produced and imported. In 1917 the total production and imports increased to 331,381 tons, of which 286,000 tons, or 86 per cent., was produced in the United States, and in 1918 the percentage of home production will not be less than 90 per cent.

It is well known that under pre-war conditions the world's supply of manganese ore came mainly from Brazil, India and Russia. Thus the shortage of shipping brought about by the war made it necessary that the United States develop to the greatest extent possible its own manganese ore resources.

The production of manganese ore in the United States in 1914 was 2635 tons; this was insufficient to make one-half of 1 per cent. of the ferro-manganese required.

In 1915 domestic production of manganese ore increased to 9709 tons, or enough to make about 2 per cent. of our requirements. During 1916 the domestic production increased more than treble that of the previous year, we producing 26,997 tons of manganese ore, or enough to make less than 3 per cent. of our increased ferro-manganese requirements. In 1917 the production of high-grade domestic ore quadrupled that of the previous year's output. We produced 113,734 tons of high-grade manganese ore, or enough to make over 10 per cent. of the ferro-manganese required.

The domestic ore production of 1917 only supplemented the foreign ores, the shipment of which was rapidly becoming more difficult.

During the first six months of the present year, 1918, we find the high-grade domestic manganese ore production greater than that of the entire year of 1917, with prospects for a decided increase in the second half over the first half.

During July, 1918, a total of 30,370 tons of ferro-manganese was produced containing 20,226 tons of metallic manganese; 23,021 tons of spiegeleisen was produced, containing 4698 tons of metallic manganese, making a total of 24,924 tons of metallic manganese in the total ferro-manganese and spiegeleisen produced. The percentage of metallic manganese derived from domestic ores in the above tonnage for July, 1918, was 47.9 per cent.

It has been estimated from the consumption to date this year that the iron and steel industry will require during the remainder of this year and the first half of 1919, 21,000 tons per month of metallic manganese in the form of ferro-manganese, and assuming that the average grade will be 65 per cent., the monthly requirements of ferro-manganese will be 32,300 tons; in addition, 3000 tons per month of metallic manganese in the form of spiegeleisen will be required; assuming the average grade to be 18 per cent. the monthly requirements will be 16,600 tons.

The total metallic manganese requirements for the year ending June, 1919, for both ferro-manganese and spiegeleisen are therefore assumed to be 288,000 tons. From the best information available at this time the United States will produce ores that will contain at least 50 per cent. of the manganese content required to make this tonnage of ferro-manganese and spiegeleisen.

At the May meeting of the American Iron and Steel Institute Mr. C. R. Ellicott presented a most complete and instructive paper, entitled "The Conservation of Manganese." In addition to the facts so ably presented by Mr. Ellicott, we desire to pay tribute to the many

*Abstract of paper presented at the Fourth National Exposition of Chemical Industries, September 27, 1918, by Theodore Swann.

producers of domestic manganese ore who by their efforts are rapidly making the United States less dependent upon other countries for our supply of manganese ores. We strongly urged that it is the patriotic duty of both the producers and users of manganese alloys to encourage in all ways possible the production of domestic ores and to further break away from the old prejudice against the use of lower grade alloys.

It has been suggested that the steel industry could further aid in the conservation of shipping by using, when possible (in many instances to their direct advantage), silico-manganese which could be made from high-silica domestic ores. Some of our prominent metallurgists consider the advantages of silicon alloyed with manganese to be:

First—The silicon forces down the carbon, giving the desired low carbon alloy for the steel addition.

Second—As a deoxidizer the combined selective action of silicon and manganese will be more active as a deoxidizer than either element alone.

Third—The resultant combined oxides, forming manganese silicate will, due to its greater fluidity, be eliminated from the metal more readily than the oxides of either alone.

There are numerous deposits of manganese ore too high in silica to be used in making ferro-manganese. These however, are available for making silico-manganese.

It is possible to make silico-manganese from high slags carrying from 10 per cent. up of manganese and also from manganese ores carrying as low as 18 per cent. manganese and as high as 40 per cent. silica. While it is not so attractive commercially to use slags and very low manganese ores, this source of supply has been proven to be available by one electric furnace producer. This producer made from slags, running 10 to 17 per cent. manganese, several carloads of silico-manganese analyzing about 64 per cent. manganese, 12 per cent. iron, 23 per cent. silicon and 0.60 per cent. carbon. It may be of interest to note that the average slags produced with the above alloy run under 4 per cent. in manganese.

The manufacture of ferro-manganese in the electric furnace is one of the important developments in connection with the utilization of domestic manganese ores, especially where the plants are located near the ore deposits. Not only are such plants conserving ocean transportation, but railway transportation as well.

Perhaps the greatest value today of the adoption of the electric furnace to the production of ferro-manganese is the conservation of coke. The majority of electric furnaces are operated and heated by hydro-electric power instead of coke as in the blast furnace.

In July, 1918, over 7½ per cent. of the entire production of ferro-manganese was made in the electric furnaces. It is estimated that by the end of this year electric furnaces will be producing about 15 per cent. of the total ferro-manganese produced in the United States.

The slag and volatilization losses in the smelting of the ferro-manganese is an ample field for the conservation of our manganese supply. The fundamental causes underlying such losses are problems to be further worked out by our metallurgists. It is believed that it is possible to so improve the past general average practice, so as to increase the recovery by 10 per cent. If such increase could be made, it would save about 30,000 tons of metallic manganese and thus release over 75,000 tons of shipping.

Notice to Readers.

Our readers will please bear with patience the long delays which sometimes occur in publishing accepted matter or the utilizing of suggestions which come from all parts of the country. While the Manufacturers Record welcomes suggestions on all the problems which this nation is now facing, it is not possible for us to use all of these suggestions nor to publish promptly all of the accepted articles. The limit of space and of time makes it difficult to meet all of these conditions.

Our readers are also asked to remember that the delays which often take place in the delivery of the paper are not due to our office, but to the congestion of business in the postoffices and on the rail-

The Ferro-Alloys*

By J. W. RICHARDS, Professor of Metallurgy in Lehigh University; Secretary of the American Electrochemical Society; Member U. S. Naval Consulting Board.

A large industry has grown up within the last 50 years, most of it within the last 25 years, which furnishes to steelmakers alloys of iron with some of the rarer metals, in order to introduce these rare metals into steel. Such alloys are known as ferro-alloys, because they all contain iron (ferrum); some of them, however, contain more of the rare metal than iron. They were originally made in crucibles, cupolas or blast furnaces, but are now being principally made in electric furnaces, and their manufacture is one of the principal electric furnace industries.

They are of great importance to the steel industry. The steelmaker uses them for one of two purposes: (1) As reagents to take oxygen out of melted steel and thus insure sound, solid castings (ferro-manganese, ferro-silicon, ferro-aluminum), or (2) to put into the steel a small or large percentage of the rare metal (ferro-manganese, ferro-chromium, ferro-tungsten, ferro-molybdenum, ferro-vanadium, ferro-titanium, ferro-uranium, ferro-boron).

Let us discuss briefly these two uses. Melted steel, just before taking from the furnace, always contains some oxygen dissolved in it (like the dissolved gas in charged soda water). If this is not removed, the casting made is more or less unsound from cavities or blowholes. The addition of a small amount of an element or metal with a high affinity for oxygen removes this oxygen and makes the casting sound. Manganese (1 per cent. or less) is the cheapest and most generally used reagent for accomplishing this; silicon ($\frac{1}{2}$ per cent. or less) is more powerful, but also more expensive, and is often used to supplement the action of manganese; aluminum (0.1 per cent. or less) is still more powerful and still more expensive, and is used in very small quantities as a final addition to complete the action of the manganese and silicon. All steelmakers use one, two or all three of these reagents; manganese and silicon in the form of ferro-alloys, aluminum more often as the pure metal, but ferro-aluminum is sometimes used.

The second use is to make special steels; that is, steels containing such quantities of the rare metal as give to them properties different from plain carbon steels deoxidized by manganese, silicon or aluminum. Thus we may make manganese steel by putting in 12 to 14 per cent. of manganese, making a very tough, hard steel, such as is used in mining and grinding machinery, burglar-proof vaults, etc.; chromium (2 to 4 per cent.) makes a very hard tool steel; tungsten (15 to 25 per cent.) makes high-speed tool steel, which cuts iron while red hot; molybdenum (6 to 10 per cent.) has powers similar to tungsten, and is also used in steel for lining large guns. Vanadium (1-10 to $\frac{1}{2}$ per cent.) makes very strong steel which resists shock extremely well, as when used for automobile axles; titanium, uranium and boron impart valuable properties not so easily described. Every one of these materials is used for producing some specific result which is not produced by any other; sometimes combinations of two, three or four are used in one steel, producing a particular combination of special properties for some special purpose. Some of these materials cost \$5 per pound, and the special steels produced cost up to \$2.50 per pound, but their particularly valuable properties justify the expense. The value of these special steels to the industries, and particularly for military purposes, is very great, so great that the supply of ferro-alloys for their manufacture is an important factor in winning the war.

Ferro-molybdenum.

Molybdenum has only recently come into large use in steel. Its action being somewhat similar to tungsten, scarcity of the latter metal, particularly in Europe, has led to the manufacture of ferro-molybdenum on a comparatively large scale.

The ores are widely distributed, but not very plentiful. Molybdenum sulphide, the mineral molybdenite, looks almost exactly like shiny graphite, but it is a shade lighter in color and nearly twice as heavy. It occurs usually as flakes in granite rock, and might easily be mistaken for graphite. Lead molybdate, the mineral

Wulfenite, is a compound of lead and molybdenum oxides, a very prettily crystallized yellow to red mineral in thin square plates. It occurs abundantly in a few lead mines in the West. It is usually first treated to extract its lead, and the residue then worked for molybdenum. The sulphide used to be roasted to molybdenum oxide, and this reduced by carbon in the presence of iron ore or scrap iron in an electric furnace. It is now smelted directly in the electric furnace with carbon and a large excess of lime along with iron ore or scrap iron. Ferro, with 50 to 60 per cent. of molybdenum, is tapped from the furnace like other ferro-alloys, but with molybdenum up to 80 per cent. the alloy has such a high melting point that it cannot be tapped out without freezing; it is necessary to make a furnace full of this alloy and then let the furnace cool down and take it apart, taking out a large mass of solidified alloy; the furnace is then rebuilt.

The large use of molybdenum in steel has been so recent that not much has been made public about it. Rumor says that the large German guns which bombarded Liege (the "Black Berthas") were lined with molybdenum steel (6-7 per cent.) to increase their resistance to erosion. It seems certain that Germany drew considerable supplies of molybdenite from Norway to compensate for shortage of tungsten for high-speed tool steel. Parts of guns, gun carriages, motors, automobiles, have also been made of molybdenum steel of most excellent quality. Canada has been especially active in the manufacture of ferro-molybdenum, most of which it exported to Europe. This alloy is therefore another pre-eminently valuable war material.

Ferro-vanadium.

Without vanadium the modern automobile or auto-truck would be a much weaker machine. When steel is desired to withstand the heaviest shocks and vibration, nothing is quite so effective as adding vanadium. This is another comparatively rare metal, found principally in the radium ores of Colorado and as a black sulphide on the high lands of Peru. The canary yellow Colorado ore is treated for radium and the residues for vanadium and uranium. The United States Government (Bureau of Mines) operates this process for the radium supply. The black ore of Peru is rich and unusual; it is a sulphide with some asphaltic matter, and it is roasted and gotten into the condition of iron-vanadium oxide before reduction. The oxides are best reduced by metallic aluminum—vanadium oxide plus aluminum produces vanadium plus aluminum oxide slag. This is the well-known Thermit (Goldschmidt) method of reduction. Electric furnace reduction by carbon is not advantageous because of the large amount of carbon taken up by the alloy; powdered silicon is therefore put into the charge as the reducing agent, together with iron, lime and fluorspar, and then a 30 to 40 per cent. vanadium alloy is obtained with seldom over 1 per cent. of carbon—a very desirable composition (R. M. Keeney).

Only small amounts of vanadium are necessary in improving the steel; 0.1 to 0.4 per cent. are the usual quantities. This is fortunate, because the vanadium costs \$5 per pound and over. Metallurgists suspect that part of the improvement of the steel may be due to the vanadium combining with and removing nitrogen dissolved in the melted steel. This is probably true, yet some advantage undoubtedly must be ascribed to the final vanadium content in the steel; both avenues of improvement function. Steels thus treated are unusually resistant to shock and alternate stresses, making them very useful for axles, cranks, piston rods and such severe service.

Ferro-titanium.

Titanium is an abundant element in nature. It occurs in immense amounts as a double oxide of titanium and iron, known as Ilmenite, or titanite iron ore. This ore can be reduced directly by carbon in electric furnaces to ferro-titanium. The reduction proceeds easier if some aluminum is put in as a reducing agent, but this is expensive and unnecessary. The alloy, running 15 to 25 per cent. titanium, is sold for use in steel as a refining agent to remove oxygen and nitrogen. Thousands of tons of steel for rails have been thus treated, the tests showing considerable improvement in the me-

chanical properties by the use of quite small amounts (0.10 to 0.20 per cent.) of titanium. Only one firm in America makes this alloy, and its use in steel has as yet gained universal approval.

Ferro-boron.

This is another alloy whose valuable qualities have not yet been entirely determined. Boron is the metallic base of borax, which is a sodium-boron oxide. Boron is very difficult to reduce to the metallic state. Another raw material, not so abundant, is colemanite, containing lime and boron oxide. Many attempts have been made, none very successfully, to reduce this with iron oxide to ferro-boron. The American Borax Co. offered a prize for several years for a process which would accomplish this. Boron oxide occurs rarely in nature, but it can also be manufactured from borax and colemanite. When the oxide is obtained this can be combined with iron oxide and the resultant boron-iron compound reduced by carbon in the electric furnace to ferro-boron. Small quantities of this alloy have thus been manufactured.

Experiments on steel have shown that ferro-boron acts somewhat similarly to ferro-vanadium. Experiments in France showed remarkably strong and tough steels were thus made, using 0.5 to 2 per cent. of boron. The results have not been properly followed up. * * *

Conclusion.

The ferro-alloys are exceedingly important materials to the steelmaker, either in the making of ordinary steels or for producing special alloy steels. They are indispensable to the steel industry. They are important factors in producing both ordinary and fine steels, and therefore in winning the war. The country well supplied with them has a great advantage over the country in which they are scarce. They are deserving of all the expert attention which they are receiving from the War Industries Board, the steelmakers and the economists. The possession by the United States of large supplies and resources in the ferro-alloy line may be one of the important factors in determining the quick ending of the war.

Building Operations in Larger Cities in 1917.

In a pamphlet issued by the United States Geological Survey details on building operations for 1917 in some of the larger cities of the United States are presented. Statistics have been collected only from cities having a population of 35,000 or more at the last Federal census, and do not cover the smaller cities or rural communities.

Efforts were made to obtain detailed information from 150 cities. Sufficient detail was received from 129 cities to permit them to be included in a table showing classes of buildings; from 16 cities only totals for permits or buildings and cost of buildings could be obtained, and from 5 cities no satisfactory data were obtained.

A table included makes a comparison between 1916 and 1917 in 60 cities, Greater New York being considered one city, and as a noteworthy feature presents figures which indicate that in 1917 there was a large decrease in the cost of building operations in most of these cities and a general decrease in the cost per operation. The figures show, however, that there was an increase in 1917 as compared with 1916. The principal reasons assigned for the decrease were the scarcity and high cost of both labor and materials in the centers of population, conditions caused by the draft, and by large governmental operations in sections outside the jurisdiction of the cities considered in the report. The net decrease was \$315,491,134, or 35 per cent. The largest decrease was in Greater New York—\$100,010,819, or 55 per cent. The largest proportional decrease was in Nashville—72 per cent.—while the largest gain was in Waterbury—\$2,292,930, or 54 per cent. This was also the largest proportional gain.

The cost of building operations in these cities in 1917 ranged from \$1,036,676 in Nashville to \$90,221,357 in Greater New York, and the average for these 60 cities was \$9,736,556 as compared with \$14,004,732 for 1916.

In 1917 the number of permits issued was 70,994 less than in 1916. The number ranged from 464 in Jersey City to 20,691 in Greater New York. The average cost per operation in these cities was \$2925 in 1917 and \$3335 in 1916.

The statistics in the pamphlet to which reference is made were compiled by Jefferson Middleton, and the tables arranged by Miss Katrine W. Cottrell.

*Brief extracts from paper read by Prof. J. W. Richards at National Exposition of Chemical Industries, New York, September 27, 1918.

NEW ERA IN FREIGHT RATE ADJUSTMENT

Shippers to Become Part of Rate-Making Machinery of Country—Improvement in Traffic Movement Reported.

Washington, D. C., September 19—[Special.]—Under the system recently inaugurated by the Railroad Administration, whereby committees composed of representatives both of the railroads and the shippers will give joint consideration to all questions connected with freight rates in their designated territories, a new era in the adjustment of these debatable and often bitterly disputed matters was ushered in. In other words, the shippers from now on, through their representatives on these general and special committees, will have a voice in the establishment of freight rates on all commodities in which they are interested, as well as in any changes that may be made in these rates in the future.

The special freight traffic committees were named by the Railroad Administration as far back as July 20. On August 24 detailed regulations were issued, setting forth the conditions under which the several committees should work, the territories affected and the methods to be pursued in the adjustment of all affairs coming within the scope of their activities.

There are three chief committees whose respective jurisdictions take in the railroad operations of the East, South and West. Of these three, the Southern Freight Traffic Committee, with headquarters at the Walton Building, Atlanta, Ga., is composed of Randall Clifton, chairman, and N. B. Wright, Joseph Hattendorf, H. T. Moore and T. M. Henderson, members.

Besides the three main committees there are numerous subordinate committees covering the entire country, with definite territory assigned to each. The following gives the membership of Special Freight Traffic Committees in the South.

St. Louis, Eastern District.—C. H. Stinson, chairman; C. B. Sudborough and P. M. Hansen, members.

Richmond District.—G. S. Rains, chairman; E. D. Hotchkiss and E. S. Goodman, members.

Louisville District.—J. M. Dewberry, chairman; J. M. Denyven and C. B. Stafford, members.

Atlanta District.—E. R. Oliver, chairman; T. D. Geoghagan and S. E. Spivey, members.

Birmingham District.—E. A. De Funiak, chairman; C. H. Pearson and O. L. Bunn, members.

Jacksonville District.—J. F. Mead, chairman; F. D. McConnell and W. D. Nelson, members.

New Orleans, Southern District.—R. C. Perkins, chairman; J. B. Bannon and B. F. Martin, members.

St. Louis, Western District.—C. E. Perkins, chairman; J. E. Johanson and P. W. Coyle, members.

New Orleans, Western District.—C. S. Fay, chairman; F. Koch and Carl Glossow, members.

Dallas District.—J. L. West, chairman; Gentry Waldo and G. S. Maxwell, members.

Under the regulations of the Railroad Administration, each of these district committees will have the territory over which it is to have jurisdiction assigned by the main Southern Freight Traffic Committee, with headquarters at Atlanta. The work of a district committee, however, is not to be confined to questions arising within its limited territory, but goes on to the consideration of any and all matters presented to it by shippers, by freight traffic officers or carriers, whether under Federal control or not, or which the committee may initiate.

Procedure to be followed by shippers in connection with their problems is fully described by the Railroad Administration. They should present their problems through the freight traffic officers of the carriers serving them, or to the district committee in their vicinity. If the committee first receiving a shipper's request is not the proper one to dispose of it, it will forward the request to the proper committee with a statement of its own views and advise the shipper of the action taken.

The three chief committees, for the East, South and West, respectively, are each composed of five members. The subsidiary committees have three members each. In the larger committees the first three named are representatives of the carriers and the last two of the shippers. Of those on the smaller committees the first two represent the carriers and the last the shippers. All changes in freight rates, charges, regulations and practices published in the lawfully filed schedule of the carriers under Federal control must be passed upon by one of these committees on which the shipping public is represented before an application is made for freight rate authority.

When a matter is submitted to or initiated by a district committee a report thereon is made to the general

committee in charge. If irreconcilable difference of opinion in a district committee arise, majority and minority reports may be sent to the general committee.

All action of the district committees is made the subject of report by the general committee to the proper division of the Railroad Administration. General committees may request information from district committees or ask for investigation and report by district committees where such general committee regards additional information as necessary in order to pass properly on questions involved in reports by district committees, but no change in published rates, charges, regulations or practices shall be made except upon authority granted to the general committee by the Director of the Division of Traffic of the Railroad Administration.

The sum and substance of these and other regulations issued by the Railroad Administration on the subject are that the shippers are now a direct part of the rate-making machinery of the country.

Speaking of the present system to the MANUFACTURERS RECORD correspondent, Cameron B. Buxton, assistant to Edward Chambers, Director of the Division of Traffic representation in the scheme, ever since the Railroad Administration had been working on this plan for the adjustment of freight rates, with the shippers to have representation in the scheme, ever since the Railroad Administration was first established. When attention was turned to the plan the large committees had already been formed and were permanent in character, each at that time being composed of five railroad men. This membership was subsequently changed by dropping two railroad representatives from each committee and substituting therefor two representatives of the shippers.

Mr. Buxton said that the present system was working very satisfactorily. One of the excellent ends subserved was in the elimination of troubles and disputes which in the past have made necessary the reference of so many cases to the Interstate Commerce Commission for rehearings and adjustments. The disparity in representation between the carriers and shippers on the committees, Mr. Buxton indicated, was of no significance. The railroads are everywhere showing an inclination to "tote fair." Moreover, where disagreements ensue, no majority on the committee can determine action, as the final approval must be given by the Railway Administration before new freight rates can be established or changes made.

The recent reports covering movement of traffic for account of our various Government activities and our Allies show marked improvement. This traffic, which has increased tremendously since last fall, is being handled in a way to give general satisfaction. Naturally, this traffic is being given preferential attention, as being essential to the winning of the war. At the same time, commercial shipments are being given all possible consideration consistent with carrying out the war program. The Southern roads are handling a larger freight and passenger traffic than ever before in their history.

Wild Catting in New Oil Field.

Tahoka, Tex., September 27—[Special.]—As a result of a geological investigation of this portion of Western Texas, there is a great activity on the part of oil operators and speculators in obtaining oil leases upon ranch and farm lands. More than 500,000 acres have been leased for oil exploration around Tahoka during the last few weeks. Several oil seeps have been discovered, and surface indications are said to favor the existence of oil. The Tahoka Oil & Gas Co. has installed a standard well-drilling rig four miles southwest of here and has entered into a contract for drilling a hole 4000 feet deep, if necessary, in search of oil. There are many brackish lakes scattered through this region, and practically all of these shallow basins, as well as the land immediately surrounding them, have been leased to oil operators.

Large Phosphorus Plant at Fairmont, W. Va.

A report from Fairmont, W. Va., says that work will soon begin on the construction of a large phosphorus manufacturing plant near there, and that it will be owned and operated by the Government. It will be electrically operated by power supplied from the new Rivesville station of the Monongahela Valley Traction Co. It is further stated that Capt. W. W. Huff and Lieut. A. D. McClellan are representing the Government at Fairmont and that they will remain there until the erection of the plant is completed.

WASHINGTON AT LAST WAKES UP TO PLATINUM SITUATION.

Once More the Manufacturers Record Is Proven Correct in Diagnosing the Platinum Shortage.

Washington, D. C., September 30—[Special.]—The use of platinum, iridium, palladium or the compounds thereof in the manufacture or repair of jewelry is prohibited under the new regulations of the Government issued October 1, 1918, and the entire work of handling and selling the precious metals is put under a system of licenses to be handled by the Platinum Section of the War Industries Board.

In dentistry the regulations also provide that no person shall manufacture any metal parts containing more than 20 per cent. by weight of platinum or 40 per cent. of platinum, iridium or palladium combined.

The Government has thus taken its most decisive step toward conserving the supplies of platinum for strictly war purposes and checking the use of the rare metal for utilization in jewelry, which can well be dispensed with during the war period.

The two main purposes to be served by the enforcement of the new regulations are the securing of a complete survey of the supplies of the platinum, iridium and palladium of the country through inventories of these metals, to be furnished at the time applications for licenses are submitted, and the development of an adequate supply of the metals necessary for war purposes and other essential uses.

The War Industries Board states that it will be the policy to disturb as little as possible, consistent with the proper administration of the rules, and the objects to be accomplished, the trades, industries, institutions and persons affected by the regulations.

The requirements for platinum for war and essential purposes are large and the supply is limited. The officials of the Platinum Section state that the shortage is not at present critical, but may become so in the near future, and it is a vital necessity that a reserve be built up for the future. The stock on hand is sufficient, however, to carry the Government for a limited period of time.

With the Russian supply cut off, which heretofore furnished the principal stock, the development of an internal source of supply has become essential. Large quantities of platinum have been brought into the country in the past, and have been manufactured into jewelry or have found their way into industries and chemical laboratories. It is from these sources that the Government must now depend for its requirements in the future.

In the regulations just promulgated, it is provided that no person shall without a license purchase, sell, barter or deal in unmanufactured platinum, iridium or palladium, or compounds thereof, except that sales may be made without a license to an authorized agent of the United States or to a licensee authorized to purchase the same, or possess for more than 90 days after the date of the regulations one ounce troy, or more, of such unmanufactured metals.

Licenses are required for producers of the metals, producers of sulphuric acid, nitric acid or other chemical products where the metals are used, importers and exporters, smelters or refiners, manufacturers of electrical appliances, surgical appliances and X-ray apparatus, chemical apparatus, chemical laboratories, manufacturers of scientific instruments, dental supplies, jewelers or any person whose business requires more than an ounce troy per month of platinum, iridium, palladium or the compounds.

Applications for licenses must be made under oath, and with the application must be a sworn inventory of all platinum or the other metals under regulation which are held. Inventories must be submitted whenever called for by the War Industries Board, or the Director of the Bureau of Mines may at any time require a user of the metals to submit an inventory of his stock.

The licenses are issued in the name of the Director of the Bureau of Mines, and countersigned and delivered by the War Industries Board.

The regulations, it is believed will go far toward relieving the platinum situation in the United States and will bring the entire stock of raw metals under the control of the Government, which will also be thoroughly conversant with the outstanding stocks of the jewelers and other users in the event that an emergency should arise.

Rich Manganese and Other Resources of Arkansas Described as Offering Great Opportunities for Profitable Development.

Glenwood, Ark., September 16—[Special.]—The activities of the MANUFACTURERS RECORD for expansion of Southern States' industries and development of Southern States' raw material resources is making itself apparent in a noticeable increase in the roaming proclivities of capital to find new and suitable locations for the establishment of varied industries and the penetration of heretofore out-of-the-way places where special raw material resources lie undeveloped.

No one manufacturing industry more than clay-working plants is more needed throughout the South, where appear to be almost spectacular deposits of clay bodies. These clays of the South run from the common clays to the finest art clays, and in the instance of certain kaolin and fuller's earth deposits as are known to the writer in this (Pike) county appear in such purity and immense quantities that one's credulity is taxed to believe his senses when confronted by the actual facts.

For illustration, in one locality within four miles of a railroad, and with less than four feet of overburden, has been uncovered a deposit of kaolin 11 feet thick, which is underlaid with 41 feet thick of fuller's earth. This earth under chemical and laboratory test stood up favorably with the imported earths and in physical tests by two Oklahoma oil refineries (other refineries using acid-burning processes), the Pike county product as a refining agent surpassed the imported earth now used by the concern making the test.

This product, even at present labor prices, can be delivered to track for less than \$3.50 per ton (basing 2900 pounds to the cubic yard), and, with convenient water near at hand, gravity to track and fuel on all sides, operations would seem to be a matter requiring a negligible outlay of capital to make this a going proposition.

Clays that under test by Ohio ceramic works proved remarkable in mixing properties and extraordinary, in that they readily glaze without crazing, and that in the finished product adapt themselves to finest art products of rich urns, pots, mantel ware and even art tile of richest tones and effects and smoothest texture, are exposed in great quantity at no less than five places within a radius of 40 miles of this place; yet there is not a brick plant, pottery or other clayworking enterprise operating within this territory. Two railroads continue to haul brick in car-lot shipments to this territory, where are numerous growing towns and heavy brick consumption, and at this writing common chimney brick are bringing \$22 per thousand, where they can be manufactured for less than \$5 with modern equipment, the raw material supply in inexhaustible quantity being within gravity slide to puddler and press or molder's wheel.

Similar conditions exist with respect to extensive manganese deposits of this section, just recently appearing to attract capital to their development. Recent charting of northern Pike county, southern Montgomery county and the north and eastern portion of Howard county determine a manganese zone 22 miles long and fully 10 miles wide. Desultory exploration and manifestly inefficient operations have resulted in several carload shipments, returns upon which show the ore of this district high in dioxide of manganese and of a character that its value in the metallurgical trade is even exceeded by its value in the chemical trade.

A 700-foot tunnel driven under Cogburn Mountain, 20 miles west of this place, has exposed no new revelations of manganese, but is reported hitting copper, one specimen of which, weighing 125 pounds, is said to contain 40 pounds of copper. Yet this property now stands idle, and some clue to its idleness may possibly be guessed at when one observes that this mining tunnel is a hole 10 feet high and 12 wide back 700 feet, and cost its principals anywhere from \$75,000 to \$125,000!

Other operations extending over a 20-mile axis of anteline along the Novaculite uplift, which is the structure rock of this particular section, are in the nature of holes blasted along manganese fissures from which the ore has been extracted with profit by farmers and more or less experienced operators with limited working capital, but it was not until recently that real mining interests had awakened to the possibilities of this section with respect to manganese and began to take the gambler's chance of determining its extent.

At Batesville, Cushman, Mena and other points in the State operations have advanced slowly, and, as in the case at Batesville, where the ore is highly disseminated

and much vacant territory encountered at great cost of determination, operations are reaching a degree of appreciable output, in spite of adverse conditions.

With recent price rulings and Government call for 800,000 tons of manganese for 1918 it appears likely that venturesome capital may tear away the wet blanket that has been covering both the fine clay and manganese deposits of this section and under proper application of money and working forces throw into view something as sensational as it is tangible and ripe for tapping.

On the whole, Arkansas is backward, but, under the energizing influence of new capital and less timid operators of capital, is blossoming out in a way that promises a vastly wider horizon in the industrial and raw-material area of the Southern States.

The aspect is encouraging but at times strenuous to those workers on the ground who are acquainted with the facts but unable without added financial forces to land the whales they have on their hooks.

The work of the MANUFACTURERS RECORD in persistently, insistently and consistently holding up these possibilities to capital is of incalculable value to the whole South and of greater value to no State more than Arkansas, which must sooner or later awaken to a realization of that fact, if it is not already awakening to it.

Industrial Activities South.

Since January 1 the Construction Department of the MANUFACTURERS RECORD has published a total of 31,574 items relative to industrial developments, building, financial and railroad operations and general business interests in the South and Southwest. Of these, 2627 items were presented for the month of September, these appearing first in the Daily Bulletin and afterward in the MANUFACTURERS RECORD. Under their appropriate headings, items for the preceding eight months were detailed in monthly statements. Those for September are shown in the following table, which also summarizes the totals for the nine months:

	Totals for September.	Totals for nine months—Jan. 1 to Oct. 1
Industrial Developments.		
Airplane Plants, Stations, etc.	2	43
Bridges, Culverts, Viaducts.	27	253
Canning and Packing Plants.	9	304
Clayworking Plants.	3	46
Coal Mines and Coke Ovens.	92	848
Concrete and Cement Plants.	2	22
Cotton Compresses and Gins.	21	192
Cottonseed-Oil Mills.	3	56
Drainage Systems.	6	133
Electric Plants.	29	429
Fertilizer Factories.	2	37
Flour, Feed and Meal Mills.	19	232
Foundry and Machine Plants.	34	353
Gas and Oil Enterprises.	63	1,001
Hydro-Electric Plants.	4	43
Ice and Cold-Storage Plants.	26	229
Iron and Steel Plants.	3	48
Irrigation Systems.	2	30
Land Developments.	18	333
Lumber Manufacturing.	38	540
Metal-Working Plants.	7	77
Mining.	23	593
Miscellaneous Construction.	26	261
Miscellaneous Enterprises.	79	788
Miscellaneous Factories.	98	1,134
Motor Cars, Garages, Tires, etc.	54	847
Railway Shops, Terminals, Roundhouses, etc.	14	88
Road and Street Work.	133	1,163
Sewer Construction.	33	317
Shipbuilding Plants.	11	197
Telephone Systems.	7	38
Textile Mills.	34	383
Water-Works.	44	428
Woodworking Plants.	27	303
Buildings.		
Apartment-Houses.	33	464
Association and Fraternal.	56	327
Bank and Office.	51	565
Churches.	34	554
City and County.	25	349
Courthouses.	8	79
Dwellings.	294	3,249
Government and State.	63	730
Hospitals, Sanitariums, etc.	41	452
Hotels.	31	356
Miscellaneous.	34	351
Railway Stations, Sheds, etc.	16	154
Schools.	105	1,390
Stores.	85	1,184
Theaters.	25	213
Warehouses.	51	494
Railroad Construction.		
Railways.	10	251
Street Railways.	2	40
Financial.		
Corporations.	52	690
New Securities.	167	2,133
Machinery Wanted.		
Machinery, Proposals and Supplies Wanted.	314	4,021
Fire Damage.		
Fire Damage, etc.	150	1,798
Totals.	2,627	31,574

WHAT STATE CAN MATCH ITS PATRIOTISM?

The Sweep of Americanism from End to End of Mississippi.

Jackson, Miss., September 28—[Special.]—This is the story of a State that found itself.

When the United States entered the great war, Mississippi, far removed from the great centers of human activity, and essentially a rural Commonwealth, became the news in a sort of daze.

Her newspapers sought to arouse the people, public meetings were held, the ministers rallied to the call of their country—but if the urban population was aroused there was still the drag of the "far-back" communities struggling with their first international problem.

The war drives in the early days of last year were amply responded to in the towns, but the State's quota was not filled, and it was not until the first of the present year that one sensed a real feeling in the State of earnestness toward war problems.

Then the various campaigns began to come thick and fast, and organizations that were the result of weeks of work by the best business men in the State combing every backwoods district for subscriptions, and incidentally sent the best speakers to be had into these territories to educate the people.

The Red Cross drive of the summer, in which the State trebled its quota and gave more than \$1,000,000 to the War Savings drive, in which the State's quota of \$40,000,000 was sold easily, and the third Liberty Loan drive, which went through quickly and without strain, all were symptoms of an aroused State, awakened by the constant hammering of the press, by hundreds of speeches, by the letters from France written by sons and brothers and friends, and by the marching away almost daily of draft contingents.

But lingering doubts of the State's 100 per cent. feeling of patriotism were entirely swept away by the conference for the United War Fund drive just held in this city.

Similar meetings have been held in every Southern State—two of them in large cities, like Atlanta and Birmingham—but Mississippi beat even these.

Nearly 1000 delegates registered at the great convention, and when Gypsy Smith attempted to address the crowds that had gathered to hear him the first night of the convention it was found necessary to have him speak twice in the two largest auditoriums of the city. Nearly 5000 persons, or one-fifth the total population of Jackson, heard him, and hundreds were turned away.

It rained the night he spoke, but cars stood in lines for blocks near the two churches where he was to appear two hours before the meeting.

Two thousand persons attended the sessions of the conference, representing every section of Mississippi, and the State's quota, fixed at \$700,000, will be doubled, according to leaders in the State who understand the spirit now behind the war work in progress.

Negroes heard the speeches and held conferences during the meeting.

It was pronounced the greatest meeting of its kind yet held in the South in point of numbers, spirit displayed and quality of delegates, and yet it was held in the middle of the cotton-picking season, when business men are all working night and day and planters at the height of their activities.

It was thrilling to see the crowds pack the two great auditoriums to the doors and listen in perfect silence to the stories of the war and to the needs of the boys on the other side, save when some remark brought forth a storm of applause.

And the significant thing about the applause was that it was loudest when some speaker asserted the determination of the United States not to discuss peace until Germany had been thoroughly beaten on the battlefield.

Mothers and fathers and brothers and sisters of men who are in France cheered this statement time after time.

Mississippi is 100 per cent. American because her folks were nearly all born and reared within her own boundaries. They are somewhat provincial, but aroused—well, watch the results of every war movement that she gets a chance at from now until the time the peace treaty is signed in Berlin.

The Coal, Iron and Steel Situation in the Birmingham District.

Birmingham, Ala., September 30.—[Special.]—Even though the quarterly revision of prices for pig-iron has been announced and there is an increase of \$1 per ton in foundry and basic irons, but little change is noted in the market. Some benefit is to be felt by Southern manufacturers of iron, it is to be heard, by reason of the little advance in price, as a number of sales in small lots made recently, with sanction of the Government as to delivery, carried with them a clause that the revised price would obtain. The Government continues to allocate business to the iron manufacturers in this section of the country, and there is a large tonnage to be worked out within the next six to nine months. Some request comes in by every mail to accommodate this or that consumer of iron. Sales agencies of Southern companies are again asking to be allowed to sell a little iron. Efforts are being exerted looking to a larger output at furnaces, with prospects of the new month showing gains in production. The Republic Iron & Steel Co. repaired its No. 3 furnace, and ore that was accumulated during the dull period a few years since around the Spalding mines, below the city, is being gathered up for use at the furnace plant. The Sloss-Sheffield Steel & Iron Co. has its North Birmingham furnace in condition again, but waits until raw material is more plentiful. The Alabama Company is getting the usual output again at the Lewisburg coal mines, where a cloud-burst a few weeks ago did so much damage. The coke ovens of this company are also resuming full operation and the Gadsden furnace is in condition for operation. This company recently completed repairs on an Ironaton furnace.

Statistics as to production in Alabama for September promise to show an increase over the previous month despite the fact there was a loss of time at one or two furnaces. The coming month holds out promises for further improvement in make, effort being made to bring about a steady supply of raw material.

Home consumption is showing no lagging, though cast-iron pipe plants have been placed in non-essential class. There is, however, considerable cast-iron pipe still being made, in this district; 80 per cent. of the product is for the Government use. Some pipe fittings are also being produced, Government needs being quite active. The newly installed equipment at the cast-iron pipe plants, working on castings and other things for essential production, is doing well. Machine shops and foundries are well supplied with orders, and there is still steady operation. Some of the smaller machine shops in this district are receiving orders from the Government for specialties, such as small plates for aeroplanes, etc. Industries in this district are being offered all kinds of work by the Government, one or two of the larger foundries and machine shops having specifications in hand that will call for a full operation of plant for a year or two, at least.

Announcement by the Steel Corporation executive committee that the recommendation of the eight-hour day plan had been adopted by that corporation will be felt in the Birmingham district, the Tennessee Coal, Iron & Railroad Co. being one of the active subsidiaries of the organization and the American Steel & Wire Co. having a big wire mill here. For some time the labor unions have been making a strong fight in this district for the eight-hour day. A strike was called some few months ago and quite a number of men walked out of foundries, machine shops, at the steel works and elsewhere in this district. The manufacturers steadfastly declined to adopt the eight-hour day plan. It is announced by the Steel Corporation that there will be no change in the open-shop plans, as heretofore obtained, which means there will be no recognition of a union. Return to the district this week of George Gordon Crawford, president of the Tennessee Coal, Iron & Railroad Co., will bring out details, so far as this district is concerned, in the new order, but the supposition is that it means the same as another advance for the men to the amount of about 10 per cent., as overtime will be paid for at the rate of time and a half, and there will be no lessening of the operations, and it is quite impossible to provide three shifts for the 24 hours' operation. Some results are expected from the change of plan or increase in wage, as it might be termed.

Henry Leon Brittain, president of the Birmingham Steel Corporation, erecting a big steel-fabricating plant here, and also executive officer of the Mobile Shipbuilding

Co., in Birmingham the past week stated that he expected to see some steel fabricated within three months, the first work to be done for an additional unit of the plant and then later on steel would be produced for the shipbuilding plant. He thought by March there will be a supply of ship parts moving from this district to Mobile. As to the ultimate limit of the fabricating plant, he said that he could not make statement now, but he had no doubt but that when the plant was in shape for rolling of steel there would be steel on hand.

The Southern Association of Stove Manufacturers held a quarterly meeting in Birmingham the past week, E. C. McCarty of the Phillips-Butoff Manufacturing Co., Nashville, presiding. There was a discussion of the stove business and the prospects of the future. The refusal of the Government to furnish priority orders for material for the stove makers has brought about a serious situation for the industry, it was asserted, and drastic effort will be made to overcome this. The decision by the Government that there were enough stoves already manufactured and that there was a better need for the material used in stove-making in the war program was also discussed. The National Association president, Frederick Will, was invited to the meeting and related some of the efforts being made in behalf of the manufacturers.

Efforts are being made in Birmingham to have the City Commission adopt an ordinance allowing the use of by-product gas for commercial purposes, the Birmingham Railway, Light & Power Co. to handle the gas from the by-product ovens being erected by the Sloss-Sheffield Steel & Iron Co. at North Birmingham. It will take 17 months in all to put up the by-product plant, but inasmuch as a pre-heating plant would be necessary and some extension of mains, the agitation is now on so that the City Commission will take action.

The big addition to the Baker Creek, Warrior River, steam plant of the Alabama Power Co. is completed, and power from there will be carried to Muscle Shoals, where the Government is constructing an immense nitrate plant. The transmission lines were completed some time ago. The addition to the power plant was encouraged and financed by the Government, much of the power to be used at Muscle Shoals. Coal mining companies and manufacturing plants between Birmingham and Warrior River, a distance of about 35 miles, are being solicited to use the power, and there will be conservation of coal and other steam-making products as a consequence. The Alabama Power Co. has an immense water plant on the Coosa River, less than 75 miles southeast of Birmingham, the power being used by the Birmingham Railway, Light & Power Co., other cities and towns in the eastern part of the State, several cotton mills and other industrial plants. The Government has had officials at the Baker's Creek plant for several months, and the completion of the industry was brought about on contract time.

Harry Coffin, vice-president and general manager of the Alabama Company, went to Baltimore the past week to confer with E. N. Rich, president, and directors of the company. The affairs of the Alabama Company are in splendid shape and future development is said to be under consideration.

Dealers in scrap iron and steel in the Southern territory are making no effort to force their product. Stocks continue to accumulate, and there is every confidence that a demand will come on shortly that will relieve the situation. Word has come this way from some of the larger centers, where a scarcity of old material is becoming more and more pronounced, that offers of scrap will be received with the chance of consummating deals. Dealers are inclined to hold back with heavy melting steel because consumers still claim to be entitled to some consideration, presenting the freight rate difference with business done on f. o. b. point of consumption. The scrap dealers here are awaiting announcements by the executive officer of the National Association, who has been conferring with the Federal authorities on several matters pertaining to the business. The dealers here look for some improvement in conditions by reason of Birmingham being made a basing point for pig-iron. The 3½ per cent. commission is also being asked for. Iron scrap in particular appears to be needed now. There is plenty of country scrap to be had and some little buying is noted. No apprehension is felt here that all the stock that might be needed could not be furnished. The present week will probably develop some big business, the dealers looking in that direction.

Quotations of pig-iron and scrap iron and steel in the South are given as follows:

FIG-IRON.

No. 2 foundry, \$24 f. o. b. furnaces, Birmingham basing point.

Basic iron, \$27.
Differentials in grades of iron same as before the Government regulations as to prices went into effect, according to silicon. Revision of price in effect October 1, 1918, to continue three months.

OLD MATERIAL.

Old steel axes.....	\$38.00 to \$40.00
Old steel rails.....	29.00 to 30.00
Heavy melting steel.....	27.00 to 28.00
No. 1 railroad wrought.....	31.00 to 34.00
No. 1 cast.....	31.00 to 34.00
Stove plate.....	25.00 to 26.00
Old car wheels.....	29.00 to 30.00
Old tramcar wheels.....	27.50 to 29.00
Machine-shop turnings.....	16.00 to 17.00
Cast-iron borings.....	17.00 to 18.00

Coal and Coke Production in 1917.

The production of bituminous coal in 1917 was 551,790,563 net tons, an increase over 1916 of 49,270,881 tons, or nearly 10 per cent., according to C. E. Leshner of the United States Geological Survey, Department of the Interior.

The production of Pennsylvania anthracite in 1917 established a new high record of 99,611,811 net tons (88,939,117 gross tons), exceeding that in 1916 by 12,033,318 net tons, or nearly 14 per cent., and surpassing the previous record of 91,524,922 net tons in 1913. With the exception of West Virginia, all the large coal-producing States recorded increases, the only decreases having been in West Virginia (0.02 per cent.), Oregon, South Dakota and Georgia.

The production of coke in 1917 was 55,006,828 tons, an increase compared with 1916 of 1,073,243 tons, or 2.0 per cent. The output of by-product coke increased from 19,069,361 tons in 1916 to 22,439,280 tons in 1917, and represented 40.4 per cent. of the total in 1917 against 35 per cent. of the total in 1916. The production of beehive coke decreased from 35,464,224 tons in 1916 to 33,067,548 tons in 1917. The number of active by-product ovens increased from 6007 in 1916 to 7298 in 1917, and of beehive ovens from 65,605 to 68,687, but the irregularity of operation of beehive ovens in 1917, due principally to lack of railroad cars, reduced the average production per oven. Nearly all the decrease in production of beehive coke was in Pennsylvania, although in the last month decreases were recorded in Georgia and Kentucky. The production of by-product coke decreased slightly in Illinois, Pennsylvania, Tennessee and Washington and increased notably in New Jersey, Ohio and West Virginia.

The number of men engaged in producing bituminous coal increased from 561,102 in 1916 to 603,143 in 1917, and the number producing anthracite decreased from 169,869 in 1916 to 154,174 in 1917. However, the number of men employed underground in the production of bituminous coal increased from 474,244 in 1916 to 498,185 in 1917, a gain of but 5 per cent. compared with a gain of 20.8 per cent. in surface employees.

In the anthracite regions the number of underground employees decreased 5.8 per cent., but the surface employees increased 2.4 per cent. In both branches of the coal-mining industry there was a relatively large gain in the number of men employed on the surface, which is significant when it is realized that it is the underground worker who actually produces the coal and who is the more skilled workman.

The average number of days worked in both bituminous coal fields and anthracite mines was the highest recorded—243 in the bituminous field and 285 in the anthracite.

BIG MOVE FOR SHIPBUILDING IN INTERIOR.

Eight Steel Tank Steamers to Be Built at Nashville.

Eight steel ships for the transportation of oil have been ordered by the Government from the Nashville Bridge Co., Nashville, Tenn., each of them to be 218 feet long, 35 feet wide and 20 feet deep, with seven compartments, so that different kinds of oils may be carried in one vessel. Each ship will carry a total of about 600,000 gallons and will be equipped with pumping facilities. Plans for the vessels have been prepared by A. J. Dyer of the Nashville Bridge Co., and as the ships are finished they will be forwarded via the Cumberland, the Ohio and the Mississippi rivers to the Gulf of Mexico.

FLORIDA AS A FINE CATTLE COUNTRY.

A Texas Expert Gives a Strongly Appreciative Review of Wonderful Possibilities.

The great possibilities of Florida as a cattle-raising State are graphically and expertly considered and discussed in a pamphlet written by Frank S. Hastings, manager of the S. M. S. ranch of Stamford, Tex., and called "Florida, a New Cattle Range Country."

"There are," begins Mr. Hastings, "15,000,000 acres of open range in Florida, 24 hours from Washington, D. C., capable of carrying 3,000,000 cattle all the year 'round, with but little winter help. It is only a part of between 70,000,000 and 100,000,000 acres in the Southeast that is qualified to carry a head of cattle on every 5 to 15 acres. To people in the 'Wild West,' who have thought of themselves as having exclusive rights on big territory, how does this sound? How does this sound to people in the corn belt who are wondering what to do with their boys to keep them out of the cities when they come back? The average Texas Panhandle county is 30 miles square and contains 576,000 acres; a tract 40 miles square contains 1,024,000 acres. The largest ranch in America is the King ranch in Southern Texas. It comprises about 1,000,000 acres."

With these and other preliminary remarks Mr. Hastings strikingly introduces his subject, saying also that a brief history of Florida's cattle came to him "from that critical historian of industrial Florida, J. E. Ingraham of the Florida East Coast Railroad, who for 40 years has been the stockmen's friend and a leader in East Coast development." The cattle were of Spanish origin, brought over by early Spanish colonists. Cuba was the market for cattle raised in Florida. The best bulls were sold for fighting and for slaughter; the most inferior were left for breeding, "and no one can understand the real economic crime of breeding a Florida scrub bull until he sees one." In spite of this, Mr. Hastings was surprised to find Florida native cattle as good as they are.

Comparing Florida native cattle of today and Texas cattle 40 years ago, he "concluded that the Texans had more scale and average weight." He was also inclined to say they had more vitality, but is now convinced that "honors are about even on that score." He was also impressed with the good conformation of Florida cattle.

Among other impressive sentences showing the capacity of Florida cattle lands and their every suitability for the raising of fine stock are the following:

"The Everglades have not been considered a part of the cow country, but under the draining process now going on may become a part, and will certainly be a factor in view of the possibilities of feed production. Eliminate the Everglades from the area I have given, and you have the range country. It is off the beaten track of the hundreds of thousands of tourists. It is a veritable hidden country. It consists of prairie, a limited amount of cut-over land, large tracts of virgin long-leaf yellow pine, known as the 'flat woods,' in the main not too closely grown to permit abundant vegetation. I drove 600 miles through a block of some 3,000,000 acres without a fence. I am told that on every acre of it good stock water can be developed at from 10 to 50 feet.

"I saw the country in the dead of winter and during a year when they have had the coldest weather in 25 years. The cattle looked well; they were not being given any help, and practically no mortality had occurred. In fact, they were shipping fat cows off the open range, and expected to keep it up all winter. My mind went back to Texas, suffering from its great drouth, with roughness (grasses) scarce, and I figured that Florida could never run out of a filler to use in conjunction with cake in bad times. In fact, I think there is enough roughness going to waste in Florida this (last) winter to save every cow in Texas if used with cake. I make two great claims for Florida's cattle possibilities—unlimited water supply and a sure winter protection in unlimited roughness with which to combine cake or their great native asset, the velvet bean."

In that portion of his pamphlet which deals with cattle breeding Mr. Hastings is very emphatic, although he expressly disclaims any breed prejudices, but he says: "One thing is sure. Breeding a scrub bull is working for the Kaiser. It is an economical crime. I urged the Florida people to buy all the pure-bred bulls they could and then fill out; work through some Florida agency, their own livestock association preferred, come down below the line (quarantine) in Texas; go to some reliable breeder and contract this (last) spring for his

crop of calves to run as bulls, subject to a buying out. A few years only are needed in order to evolve good cattle. In 10 years they can have a wonderful breeding demonstration, and in 15 years forget that Florida ever had a scrub. Incidentally they can almost double both prices and weight."

"Cutting up the open range in tracts of from 5000 to 100,000 acres, and fencing, developing water every four miles and giving a maximum walk of two miles seems the only way to utilize the Florida cattle country. This initial fencing and control will eventually result in further concentration. Much of the range is good farm land. Owners of land are in many instances not in any sense cattlemen, and not inclined to go into the business. Others are making a demonstration by developing some of their properties, notably the Horse Shoe ranch of Florida, owned by the Kissimmee Island Cattle Co. These people have done a wonderful work in one year, enclosing some 200,000 acres, brought in some 300 good Shorthorn, Brahmin and Hereford bulls and laid out a progressive line of evolution under the able guidance of W. F. Ward, for many years in charge of beef investigations for the Department of Agriculture. An appreciable number of owners are working out a plan of lease contracts, the details of which may not yet be finished, but in a general way a five-year lease.

"There is no criticism of the men who are using the free range; in fact, they have done a good service by utilizing what would otherwise have been waste. They should be among the first to take advantage of lease contracts and protect their holdings. It seems impossible that the great ranges they have been occupying should remain longer unfenced with grass cattle values at the level we have a reasonable hope for during the next decade at least.

"Armour has a slaughtering plant at Jacksonville which is doubling its capacity, and there is little question that the packing industry will keep pace with the increase of beef and pork production in the South. I found lots of hogs running out on the open range, living on vegetation of one sort or another. The fresh pork from this class of hogs is delicious, but I am told that it needs hardening for packing purposes. There are other parts of the State where the production of prime pork is a real industry, and is growing by leaps and bounds. A banker in Ocala told me that his deposits during the past year had increased \$169,000 as a result of the increased local hog industry. Eventual intensification of feed production and the utilization of the redeemed Everglades will, in my opinion, make Florida a great hog-producing State, with range production an appreciable factor."

\$2,000,000 Terminal Started at Tulsa.

At Tulsa, Okla., two blocks of ground have been cleared of buildings for the site of the new passenger and freight stations of the Tulsa & Santa Fe Railway Co., which is the name of the terminal company having charge of the building of local facilities for the Santa Fe system. Construction has started upon the foundations and the erection of the freight station is to be pushed through in a few months to meet the requirements of traffic. The passenger depot will have a frontage of 90 feet and a depth of 147½ feet. It will be of brick and concrete construction, with terra-cotta trimmings, and two stories high. The second floor will be used for offices. The freight sheds will be 350 feet long and 32 feet wide, and they will be built of frame and brick, with concrete foundations and floors. The freight offices, 80x65 feet and two stories high, will be at one end of the sheds. Between the two stations will be ample yard and storage tracks. The larger part of the yard will have space for 600 cars; that at the terminal itself will accommodate 125 cars. The cost of the entire improvement, as previously announced, will be about \$2,000,000.

New Oil Refinery Planned for Port Neches.

Port Neches, Tex., September 28—[Special.]—It is reported on what is believed to be trustworthy authority that the Magnolia Petroleum Co. plans to build a large refinery on the deep-water front near here. The company has just closed a deal for a tract of land costing \$80,000, which is ideally situated for the installing of ocean shipping facilities, and this is regarded as the first step in the new refinery project. It is stated, however, that the construction of the plant may be deferred until after the war.

Sugar and Syrup from Louisiana for National Food.

New Orleans, La., September 27—[Special.]—Weeks from this date a very large number of the factories of the State will be already grinding. Indications are now for a very good crop, around 3,000 tons, including syrup. The labor situation may hinder some and prolong the season, along with the fact that the United States Railroad Administration will give the planters generally 20 per cent. less for stock for moving the cane to the factories this year than they gave last year. The season, however, will practically end all sugar-making in the State until next fall, for the houses this year are going to make sugar and first molasses, and the drying seconds and thirds which spread the operation of the houses over a longer period than the grinding itself will not be done this year. The refineries in the South, which the usual buyers and washers of Louisiana sugars, will be practically closed down from now on until January or February to permit the marketing without competition of the exquisite sugars and syrups and molasses of Louisiana in the zone allotted to them under control of the Louisiana committee of seven of the International Sugar Committee of the National Food Administration. The weather for the first three weeks of September has been ideal sugar-cane maturing weather, and it came at the right time to add its counteracting effect to that of the July and August rains against the ill-effects of the drouth of May and June. The cane should be heavy with sugar and make a good crop certain. The parishes that produce over 90 per cent. of the crop are all boasting of very satisfactory cane conditions. The advertising campaign to be carried on in conjunction with the Food Administration of Louisiana sugar-cane products has gained great momentum. Georgia syrup interests are endeavoring to be included and have asked that the trade name for syrup adopted be not one referring only to Louisiana, but be comprehensive of the entire Southern cane-syrup business. Georgia, it must be remembered, produces quite a little cane syrup, which by the power of advertising brings big financial returns to the producers and distributors of this article. Florida, too, makes sugar cane syrups, but, of course, comparatively the Georgia and Florida crops are inconsequential.

Wage increases have been ordered to hold some of the field labor, and Mexican and Porto Rican labor will more than probably be imported. Barring a series of severe freezes, the industry this season will very likely be able to struggle along with the labor available, but when this grinding is over the labor question for the next harvesting must be tackled at once or the sugar output of Louisiana is going to fall down considerably. Fall planting is started already in many places.

Instances of rejuvenation of old places almost abandoned continue to occur, and in Assumption parish on old Bayou Lafourche, this week the Beelewood factory, latterly devoted only to syrup-making, but inoperative for the past season or two, was taken over by a syndicate of young planters to be reoperated.

The rice harvesting continues very satisfactorily, aided by fine harvesting weather, and in the sugar district it is almost over. In the Southwest rain in some sections delayed harvesting of rice a little, but helped other crops so much that the delay, which was only slight on the rice farms, was more than offset.

Over 5,000,000 gallons of table syrup of the kind that sells on the plantation for 65 cents a gallon and upwards have already been contracted for out of the production to be made this year, and also about an equal quantity of high-grade molasses called firsts. The canners and distributors of molasses and syrup expect a 20,000,000-gallon production in Louisiana this year, and are prepared to handle one-third more of these cane products this year than last year.

Pipe lines are now being laid for the Terrebonne gas fields in Terrebonne, and they will be finished in time for the gas to be available as fuel for at least six big Terrebonne sugar factories this season.

Importations of sugar from foreign countries at New Orleans in August amounted to 38,261,388 pounds, valued at \$1,673,858, and the black-strap molasses importations in the same period amounted to 5,312,078 gallons, valued at \$375,845, according to a report of the local custom-house.

A new 300-barrel rice mill is to be built at Moreau, La., in the southwest section.

Highways Receiving National Recognition

THE VITAL RELATION OF HIGHWAYS TO NATION'S WELFARE OUTLINED BY CABINET OFFICERS AND OTHERS.

The following is an authorized statement approved by the Council of National Defense:

A definite program of specific use of the highways in support of both the war plan and the reconstruction policy for post-war times was developed by the Highways Transport Committee of the Council of National Defense in a conference of its eleven regional chairmen, representative of every section of the country, held at Washington, September 17 to 19, inclusive.

Recognition of the highway's value as a transportation resource was evidenced by the appearance before the committee and its chairmen of Cabinet officers, members of the National Railroad Administration, the Food Administration, the War Industries Board, the National Highways Council, the Electric Railways War Board, the Army, and the United States Senate. President Wilson received the conferees at the White House on the conclusion of the sessions.

Every one of the governmental agencies whose war work can be effected by the full utilization of highways transport proposed a close co-operation between its own organization and the nation-wide organization, which the Highways Transport Committee, under the direction of Roy D. Chapin, chairman, has achieved in the last nine months. All were glad to suggest means of developing this co-ordination for America's common cause.

Herbert Hoover, Federal Food Administrator, warmly approved the development of the rural express as a means for saving perishable foodstuffs now produced for stimulating production of more food, for lowering costs of living, and for conserving farming manpower for the soil. Mr. Hoover observed that 50 per cent. of the perishables produced in America are wasted, largely through ineffective means of getting it to market. Fast, intimate service by rural expresses, he foresees, will be a great source of saving. By the use of motored expresses, Mr. Hoover pointed out, the farmer need not maintain so many draft animals on the farm, animals that eat the crops of millions of fertile acres that otherwise could be devoted to raising food for people. The failure of the public market in America, Mr. Hoover said, was caused by inadequate transportation of an intimate sort, and he believes that a developed rural express will give public markets a basis of economic success and tend toward lower price levels.

Franklin K. Lane, Secretary of the Interior, tied the highways development into his plan for putting millions of returned soldiers and their families on small farms carved by the Government from great areas of public domain now either unused or in need of reclamation.

"I can see the making of a new America," said Secretary Lane, "a nation of farming communities and small industrial centers; for each will have its own creamery, cannery and other means of taking care of its surplus products. These farming communities will be populated largely by returned veterans, comrades in arms, comrades in peace, the material, political and spiritual leaders of these communities. These centers must be developed and tied together and made easy of access by good roads, over which the most efficient of transport will move goods to market."

William C. Redfield, Secretary of Commerce, told the regional chairmen that he regarded highway, waterway and railway as a trinity of economic usefulness, incapable of fullest function unless all factors of it were developed efficiently. He pointed out that the perfection of the internal-combustion engine has given both highways and waterways a new tool—the motored vehicle on the roads, the motored barge on the rivers and canals. He remarked that though the Hudson River were bordered with three times the rail lines it has now, and its waters plowed by all the ships it could carry, still the farmer living inland five miles from it would fail to profit unless given access to docks and depots by rural expresses. Secretary Redfield said he regarded legislation to restrict the size of motor trucks in order to save the roads as a menace to development of highway transport as intolerable as it

would have been to have stopped locomotive development 40 years ago because engines and cars were getting too heavy for the light rails of those days. Our transportation routes must be fitted to the new tools, he declared.

Relief for the railways by another of the Highways Transport Committee's projects—the store-door delivery system—was welcomed by Edward Chambers, former vice-president of the Santa Fe Railway, now Director of Traffic in the National Railroad Administration. He urged the chairmen to promote the trucking of less-than-carload shipments from the manufacturing centers to communities 30 and 40 miles out, and the co-operation of the highways regional chairmen with the railways regional traffic directors, to facilitate the clearing of the terminals in the larger cities. Mr. Chambers announced that in conjunction with the Highways Transport Committee the Railroad Administration is trying out the store-door delivery system in New York, with hopeful results. If it meets expectations there it will be extended to other large centers.

Mark L. Requa, director of the oil division of the Fuel Administration asked the committee's co-operation in a campaign to promote more efficient operation of all gasoline-powered vehicles and the conservation of fuel through the stopping of wasteful practices and non-essential running.

The army was represented before the conference by Lieut.-Col. W. D. Uhler, Q. M. C., in charge of army truck convoy service. Lieutenant-Colonel Uhler bespoke the co-operation of the chairmen in providing for the clearing of roads during the coming winter, when, as it has for nine months now, the army will be moving long trains of motor trucks from inland factories down to the seaboard under their own power and cargoes with munitions.

Joseph D. Baker of the War Industries Board's staff asked chairmen to help make clear to motorists and garage managers the necessity of saving both materials and man-power, and suggested ways in which such savings can be effected.

Reports made by the regional chairmen show tonnage moved over the highways increasing at a tremendous rate, in some States as much as 400 per cent. increase over last year being shown. The Cleveland-Akron-Canton area reported 61 per cent. as much freight being moved by motor express now as the railroads are carrying. High development of the return-loads bureau, which insures most economical operation of highways transport, was noted in the State of Connecticut, with Hartford acting as the central bureau. In Cincinnati and Omaha livestock are being carried to stock yards over the highways in increasing numbers. Rural express has reached its highest efficiency in Maryland, New Jersey, Eastern Pennsylvania and Southern New York. Arrangements have been made to connect New York State Barge Canal ports with the farming communities back from it by rural express.

The Highways Transport Committee is completing country-wide organization that will number more than 15,000 committeemen, manufacturers, farmers and consumers, all working through contact with the State Councils of Defense and with the committee's regional chairmen. These chairmen, all but one of whom were at the entire conference, are: J. Randolph Coolidge, Jr., of Boston; George H. Pride, New York; C. A. Musselman, Philadelphia; Tom Winn, Atlanta; Harry L. Gordon, Cincinnati; John J. Stockton, Chicago; J. F. Witt, Dallas; Julius H. Meier, Portland, Ore.; L. A. Nares, Fresno, and Earle Brown, Minneapolis. Mr. Brown, who could not attend, was represented by Messrs. Babcock, chairman of the Minnesota Highways Transport Committee, and Mr. Leach of Minneapolis.

To Increase by 3200 Spindles.

The Pinkney Cotton Mills, Gastonia, N. C., which manufacture fine combed yarns, will soon add 3200 spindles to their equipment. The company is also erecting a new office and some new cottages. R. G. Rankin is president and treasurer.

Government Urged to Build Military Road in Tennessee.

Columbia, Tenn., September 19—[Special.]—There is widespread sentiment favoring Government construction and maintenance of special highways, at least for the period of the war, and the movement found strong expression at a recent conference of prominent and leading citizens representing towns in Middle Tennessee and Alabama, held at Lawrenceburg, Tenn. The primary object of the meeting was to devise ways and means of convincing the War Department of the wisdom of taking over and constructing a model highway over that portion of the Jackson military route from the great powder plant at Nashville, Tenn., to the nitrate plants at Muscle Shoals, Ala., two of the greatest projects of the kind in the world. More than 300 enthusiastic citizens, who have spent much time and energy in an effort to make a creditable highway of the Jackson route, attended the conference, and an auxiliary association to the Jackson Military Highway Association was formed with the election of Judge R. T. Simpson of Florence, Ala., as president, with a subchairman from each county traversed by the route. Each subchairman was called upon for a report of the condition of the highway in his respective county, and without exception it developed that the counties have done splendid work and that the great route is in splendid condition to be assumed by the Government, being absolutely free of tollgates that so long impeded road development in this section. J. J. Murray, secretary of the Tennessee State Highway Association, stated that the State would give all the co-operation possible and that he was of opinion that as soon as the highway between the two points had been completed by the respective counties the Government would consider taking it over and maintaining it as a national highway. A fund is being raised by the counties, according to mileage, which will be used in a campaign to induce the department to give the matter consideration.

The MANUFACTURERS RECORD recently published regulations governing road construction as issued by the United States Highway Council, and with their regulations before us it seems that this particular piece of road construction comes under the head of war necessities. The MANUFACTURERS RECORD frequently advocated a more liberal use of the motor truck and this is one of the surest and most practical means of modern transportation in the event that roads are susceptible to fast truck traffic. In the case of the Jackson Military Highway, the Government could connect its two immense plants and no doubt greatly facilitate transportation. Although there is nothing particularly in common between the two plants, the eventuality might arise when such a situation would be of vast benefit to the Government. The State Highway Department has given careful consideration to the proposed highway on its merits in the light of the policy announced by the U. S. H. C. and stamps its endorsement on the movement.

As recently put by the Highway Industries Association, "the enormous amount of freight, supplies and men that will have to be handled during the coming winter to properly provide for the wants and increase of the army and those industries whose output are essential to the upkeep of the army will practically require the entire rolling stock of the railroads, and there will be a great deal of produce and other supplies that will necessarily have to be handled over the highways." This information was in mind when the campaign was launched for a creditable highway connecting the two big projects. This highway is going to be essential and necessary for the carrying of supplies for the proper prosecution of the war and as an aid to the railroad traffic congestion that is sure to have its advent with the winter months. The railroads are burdened, and there is abundant opportunity for the motor truck to play an effective part in keeping the wheels of industry turning in the direction of Berlin.

Despite its proven sphere of usefulness, the truck is yet hardly past its stage as purely a local utility. There is no discounting the fact that it nobly fulfilled its purpose in its original mission, but the opportunity should be expanded so as to allow much needed relief, and that before winter. The Government, of course, has its hands full, and is not overlooking a suggestion that will hasten the end of this war, but the sooner the railroads are given relief the nearer the worst will be over.

Washington Still Short-Sighted on Highway Improvements.

Washington, D. C., September 30.—[Special.]—Construction work on streets, pavements and highways, which is now substantially under way, may be continued up to November 1, and manufacturers and distributors of materials to be used in connection with such work may continue to furnish the materials throughout the month of October, under a blanket ruling made by the Priorities Commission on September 26, 1918.

No new contracts are to be undertaken, however, either prior or subsequent to November 1 without obtaining a permit from the United States Highways Council through the State Highway Departments, and interested persons are warned that applications for permits for the completion of all work now under contract or construction which cannot be finished prior to November 1 should make application for permits without delay.

The blanket permit to continue the work already undertaken, which can be hurried to completion during October, is the result of the urgent requests being received from practically every section of the country. It was pointed out by contractors and others interested in the completion of highways work that with winter coming on, work must be rushed during October in order that further delays are not encountered due to frost and cold weather. Much of the work under way was being held up by the necessity of obtaining permits, and the granting of full power to proceed during October, it was claimed, would facilitate the building work.

There are numerous projects which will be entirely completed during the month of October as a result of the waiving of separate permits for that period, estimates placing the amount at 10 per cent. of the entire work for the year.

The order, however, does not represent any tendency toward a more lax regulation of construction work on highways in the future. Officials are inclined to see in it the possibility of an even more rigid enforcement of rules, for with many small jobs and partially completed contracts cleaned up before November 1 will be possible for the priorities commission to inquire more fully into the merits of all requests for permits.

The War Industries Board, it is understood, is finding that the issuing of permits and priority rights on many small works is impracticable. Cases have been frequent in which permits are required for the manufacture of parts of machinery, and additional permits for the shipment of the articles by freight, many of the parts being of comparatively small size, yet causing the suspension of a large amount of work in the plants employing the machinery. Eventually it is apparent that some more efficient plan must be adopted to deal with such cases.

The War Industries Board has already put into effect a new regulation controlling non-war construction, whereby new constructions for farm purposes where the aggregate cost does not exceed \$1000 may be undertaken with a permit.

A number of exceptions from the general regulations of the Priorities Division have been made. No special permits will be required in future for structures, roads and other construction projects falling under the following classification: Undertakings, cleared and approved by the War Industries Board, directly by or under contract with the War Department or the Navy Department, Shipping Board, Emergency Fleet Corporation, Bureau of Industrial Housing and Transportation of the Department of Labor, or the United States Housing Corporation.

Exemption is also given for repairs or extensions of existing buildings involving in the aggregate a cost not exceeding \$2500, and new construction on roadways, buildings and other structures undertaken by or under contract with the Railroad Administration or a road operated by it. Work on buildings and roads connected with mines producing coal, metals and ferro-alloy minerals are also exempted, as well as public highway improvements and street pavements when expressly approved in writing by the United States Highways Council.

No building projects not falling within one of the foregoing classes, however, may be undertaken without a permit in writing issued by or under the authority

of the chief of the Non-War Construction Section of the Priorities Division.

While it is not the policy of the Government, says the War Industries Board, to interfere unnecessarily with any legitimate business, industry or construction project, it must be borne in mind that there is an imperative and constantly increasing demand for labor, material and capital for the production and distribution of direct and indirect war needs. To satisfy this, much non-war construction must be deferred.

Tennessee to Build Dixie Highway Regardless of Difficulties.

Failing to get bids at a satisfactory price, the State Highway Department of Tennessee has authorized A. M. Nelson, State highway engineer, to secure the necessary equipment, employ the labor and complete the Federal, State and county projects along the Dixie Highway between Nashville and Chattanooga by force account. This is probably the first State in the South to adopt this policy to meet the new war conditions. The action of the State Highway Department will not interfere with the three projects on this road which were previously awarded to contractors at a satisfactory price. Bids on two projects covering the completion of 22 miles of the highway and aggregating \$232,000 were \$50,000 in excess of the engineer's estimate made on a war basis.

One of the first pieces of work to be undertaken by the State Highway Department under the new arrangement will be to construct two and a half miles of the highway from Monteagle, on top of Cumberland Mountain, to the east brow and open up 1000 feet of grade, which will make available four miles of the highway graded almost to the top of the mountain a year ago. This will give an outlet into Chattanooga. The grade up the west side of the mountain to Sewanee, which is now being used, will be completed, making available at the earliest possible moment an entirely new road over Cumberland Mountain. The crossing of this mountain has been the greatest obstacle to travel between Chattanooga and Nashville. The surfacing of the highway over Cumberland Mountain as well as the completion of projects between Shelbyville and Winchester, which is now traversable, will be carried on along with the work on the mountain crossing.

Officials of the Dixie Highway Association have been giving a great deal of attention toward assisting the State Highway Department in solving the problem of the completion of a highway between Nashville and Chattanooga. By reason of the fact that there is no routing which can be used from Nashville into the military cantonments of the Southeast, the opening of the Dixie Highway between the two Tennessee cities has been viewed as one of the greatest military needs in the country. The Dixie Highway did not take any of the old routings, but followed new lines laid out when the Dixie Highway movement originated. It represents the nearest completed road of any routing into the Southeast.

The recent movement of a transport train of 97 trucks, in charge of a complement of 200 officers and men from the factories in Detroit, transporting Government supplies to Camp Jessup, Atlanta, demonstrated the vital need of quickly opening a road into the Southeast. No difficulty was encountered in reaching Nashville. One week was required to make the trip from Nashville to Atlanta, going via Huntsville, Gunterville, Gadsden and Rome to Atlanta.

Motor Truck Service.

The National Motor Truck Committee, 7 East 42d street, New York, has issued a folder bearing the title "The Evolution of Transportation," which is a live argument for rural motor express service. It gives numerous instances of the fine service given by motor trucks in various parts of the country, and also quotes prominent men, whose wide experience makes their opinions valuable, in support of motor service on the highways. A striking statement is this: "Under certain conditions the truck of today is operating as efficiently and cheaply as the freight car, and in almost every case it is more efficient and cheaper than shipment by express." Evidence of actual experience in the use of motor trucks is presented in brief, ready-reference form. A motor-truck poster has likewise been issued by the committee.

Good Roads and Streets

Bonds Voted.

Canadian, Tex.—Hemphill county voted \$6000 bonds for road and bridge construction.
Eastland, Tex.—Eastland county voted \$75,000 bonds for highway construction.
Gaffney, S. C.—Cherokee county issued \$25,000 bonds for road construction.
Sherman, Tex.—Grayson county voted \$50,000 bonds for road construction.

Bonds to Be Voted.

Big Spring, Tex.—Howard county contemplates voting on \$75,000 bonds for road construction.
Seminole, Tex.—Gaines county contemplates voting on \$200,000 bonds for highway construction.
Weatherford, Tex.—Parker county votes October 5 on \$100,000 bonds to construct highways.

Contracts Awarded.

Athens, Tex.—Henderson county has \$11,340 State appropriation for highway construction.
Bradentown, Fla.—State Road Department and Manatee county received bids until October 7 to grade, drain and surface with shell 11 miles of highway.
Canton, Tex.—Van Zandt county receives bids until October 8 to construct 19 miles of road, requiring 100,000 cubic yards of earth excavation, etc., 32,000 cubic yards of gravel and rock, and 850 cubic yards of reinforced concrete.
Durham, N. C.—Durham county will expend \$200,000 for road improvements.
Falfurrias, Tex.—Brooks county opened bids September 23 for 20 miles of road construction, including bridges.
Houston, Tex.—Harris county has \$30,000 State-aid for road construction.
Jasper, Tex.—Jasper county invites bids until October 5 for grading and surfacing 25.5 miles of roads, including concrete drainage structures.
New Braunfels, Tex.—Comal county has \$14,750 available for highway construction.
Seguin, Tex.—City will pave 2 miles of streets.
Wayne, W. Va.—Wayne county invites bids until October 7 to pave with tar-bound macadam 2556 feet of road.

Contracts to Be Awarded.

Clarksville, Ark.—Johnson county has plans for 25 miles of macadam road construction, to cost \$125,471.86.
Columbus, Ga.—City and Muscogee county contemplate expending \$100,000 for paving between city and infant camp.
Fort Worth, Tex.—City plans \$35,000 expenditure for pairing paved streets.
Jacksonboro, Tenn.—Campbell county invites bids until October 28 for 13 miles of macadam road.

Urges Acceptance of Surrender Only.

[Baltimore Star]

Demanding that the unconditional surrender of Bulgaria be exacted before any terms of peace can be discussed is the purport of a cable to the London Times sent today by Richard H. Edmonds, editor of the MANUFACTURERS RECORD. The cable is as follows:

"While the United States is not technically at war with Bulgaria, its people are at heart at war with Bulgaria, and every other enemy of our European Allies. From all parts of this country we are hearing of an overwhelming sentiment that there should be no parley of any kind with Germany or any of its allies until there has been an unconditional surrender of the armies and navies of Germany and all of its allies. Civilization cannot permit an armistice or peace parley with assassins. The universal thought in America of every honest-hearted man and woman is for unconditional surrender by the criminals and adequate punishment afterwards. America is whole-souledly in the war to a finish."

Mr. Edmonds said later: "Though America is technically not at war with Bulgaria, it seems to me so pre-eminently important that America should give voice to its determination that this war shall be fought to a finish and until Germany and all of its allies have unconditionally surrendered. Is it not time for every paper in America and for every pulpit in America to voice the sentiment of unconditional surrender before any armistice or any peace overtures shall be heard? America should be at war with Bulgaria and Turkey and thus strengthen our Allies in saying that no armistice shall for one moment be given consideration."

American Shipbuilding Co., Brunswick, Ga., has received a contract from the Emergency Fleet Corporation for installation of all machinery requisite for the concrete ship which is being built there and which is to be launched soon.

Porto Rico Laborers Imported by Government—Many Others Said to Be Available.

New Orleans, La., September 28—[Special.]—The first labor to be imported here by the United States Government has just reached New Orleans—1241 Porto Ricans, who will be used on the \$20,000,000 army depot warehouse system that must be completed by Christmas. They reached New Orleans September 24 on a transport, just one week out from Porto Rico. It cost the Government about \$25 apiece to bring them here, it is estimated. The Government, however, is under no obligation to take them back. Most of the men left families behind them, and they are talking about bringing them here as soon as possible, so the possibilities are there will be a large Porto Rican colony in Louisiana, as in New York.

The men are quartered in the old restricted district of the city, long since rid of its noxious influences. Saloons in the neighborhood have been ordered under threat of closure not to sell any liquor to the Porto Ricans, but the latter are under no restrictions.

Six hundred rooms were cleaned, repaired and fitted with bathrooms with both hot and cold water. The rooms are looked after by a special crew. The men are fed on the job, to and from which they are hauled every day in special cars. For room rent they are charged \$2 a month, for board \$1 a day.

They were brought here as common laborers, 30 cents an hour, the established scale here for that class of work. Among them, however, are some skilled mechanics—carpenters, engineers, and the like. These will be given an opportunity to rise, if vacancies occur, it has been announced by Major J. L. Lee, in charge of the depot construction. In that event they will be paid the regular scale.

Organized labor in New Orleans resents the importation. Labor leaders claim that there is no shortage of man-power here, and they are especially fearful lest this be an attempt to "bear" the labor market. Major Lee, however, has stated publicly that such is not the intention, and he has further declared that no one will be displaced for the sake of the imported laborers.

Some 50,000 more Porto Ricans are anxious to come to this country, it is understood. The island is terribly overpopulated, and economic conditions there are said to be frightful. Wages range from 50 cents to \$1 a day, and hunger is the principal possession of the lower classes. Most of the men in the present shipment show the effects of malnutrition. How the experiment will turn out no one knows. If favorably, it is probable that there will be further importations of Porto Rican labor especially for agricultural interests.

Improved Cotton Prospects in Texas.

Austin, Tex., September 27—[Special.]—Reports received here from various parts of Texas give positive proof, it is claimed, that the cotton crop of the State will far exceed the estimate of 2,500,000 bales which was made a few weeks ago. It is now indicated by the ginning records that the total yield will be in excess of 3,000,000 bales, and it will not be surprising if it reaches 3,200,000 bales. From almost every locality in Central and South Texas comes the news that the gins are turning out far more cotton than they originally expected to handle. In Travis county, in which Austin is situated, there have been approximately 20,000 bales ginned and the yield of the county will exceed that of last year by one-third, it is predicted. This same condition is true of all of Central Texas, notwithstanding the earlier outlook for almost a total failure of the crop. In the Gulf coast region, particularly around Corpus Christi, the largest cotton crop in the history of that part of the State is being harvested.

In explanation of the remarkable change in the condition of the crop, it is stated that the rains in the early part of September caused development of bolls that at that time promised no yield had the drouth continued. Another thing in connection with the crop that is attracting much attention is the unusually heavy top-crop fruitage of the plants. Never was there known to be brighter prospects for a top crop. The late rains have caused the plants to put on a perfect load of squares. The top-crop yield is dependent altogether on the lateness of frost.

Record-breaking prices are being paid by the planters to cotton pickers this season. In no locality is less than \$1.25 a hundred pounds being paid, and in some sections as high as \$1.75 a hundred pounds is the prevailing wage.

\$1,009,400 FOR SOUTHERN MILLS.

Total of 40,376 Spindles and 165 Looms Announced for Third Quarter of Year.

Conservatively estimated, a total of \$1,009,400 is the amount of the investment required for building and equipping the mills and adding to the established cotton manufactories announced during July, August and September. The total of spindles is 40,376 and of looms 165 for the 10 new and enlarging enterprises mentioned during the three months named.

Three new organizations and seven enlarging enterprises furnish the foregoing totals, their equipments and investments being divided as follows: 15,000 spin-

dles and 50 looms for the seven new companies, an investment of \$375,000; then 25,376 spindles and 115 looms for the seven companies which are increasing their plants, the investment being \$634,400. North Carolina is credited with 30,375 of the total spindles, and Georgia is second with 7000 spindles.

For the first quarter of 1918 the total was 50,050 spindles and 698 looms, at \$1,476,250 investment. The second quarter's spindles totaled 83,416, with an equipment of 520 looms, requiring an investment of \$2,085,400.

The new and enlarging Southern cotton mills for July, August and September are briefly summarized herewith:

Name.	Location.	Spindles.	Looms.
Alabama.			
*Ashland Cotton Mills.....	Florence.....	.....	40
Georgia.			
*Dixie Manufacturing Co.....	Atlanta.....	2,000	.....
*Mandeville Cotton Mills.....	Carrollton.....	5,000	.....
		7,000	.....
North Carolina.			
*Pauline Mills.....	Kings Mountain.....	2,376	75
Marlboro Cotton Mills.....	Hamlet.....	.....	50
*Necronsett Hosiery Mills.....	Cumberland.....	5,000	.....
*Hickory Spinning Co.....	Hickory.....	5,000	.....
*Parkdale Mills.....	Gastonia.....	6,000	.....
Boger & Crawford Spinning Mill.....	Lincolnton.....	12,000	.....
		30,376	125
South Carolina.			
Okeh Manufacturing Co.....	Greenville.....	3,000	.....
Total for first quarter of 1918.....		59,050	698
Total for second quarter of 1918.....		83,416	630
Total for third quarter of 1918.....		40,376	165
Total for nine months of 1918.....		182,842	1,393
*Established mills enlarging.			

Cementing Oil Wells Increases Output of Oil and Gasoline.

By urging the cementing of oil wells in the North Cushing field of Oklahoma, in order to keep out the detrimental flow of water, experts of the Bureau of Mines, Department of the Interior, have succeeded in increasing the production of oil from 50 wells more than 2000 barrels a day.

Aside from the commendable saving of 2000 barrels of oil each day for war uses, this lesson in practical conservation will add \$4500 a day to the operators' gross income, and if the increased oil yield continues for one year, a not oversanguine expectation, there will be an addition of more than 750,000 barrels of oil for war purposes and \$1,640,000 more in the pockets of the operators.

It is estimated by A. A. Hammer and V. L. Conaghan, the Federal oil and gas inspectors for Oklahoma, who have charge of this campaign, that the total cost of excluding the water from the 50 wells was \$10,000, which means a return of about \$165 for each dollar invested.

Secretary of the Interior Lane, commenting on the report from the field, said: "This is the kind of practical conservation that counts heavily just now. It not only is saving from waste one of the most precious natural resources with which this country is blessed, but is also supplying much-needed fuel for the army and navy. At the same time it is paying the operators handsomely to increase the flow of their wells."

"It happens that the crude oil from Oklahoma contains much gasoline. An increase of 2000 barrels of crude oil a day means 500 barrels of gasoline a day, or more than 7,500,000 gallons in a year's time. This saving alone, from this restricted field in Oklahoma, is sufficient to drive every automobile in the United States an average of 20 miles, and there are 5,500,000 automobiles in the country.

"The best of it is, this is but the beginning of an enormous saving of crude oil by keeping the water out of the wells. It has taken the bureau two years to demonstrate the feasibility of using cement in the Oklahoma wells, but now that such a saving can be effected it is being adopted by all progressive oil men. I understand that the bureau has already started a campaign in the Healdton field, Oklahoma, and that, while it has not yet received a report of the actual results, it is estimated that the saving in this field amounts to more than 300 barrels of crude oil a day. In Illinois the same plan is being introduced, so that the Bureau of Mines is confident that the total savings to the country will be considerable and will go quite a distance in supplying our urgent war needs.

"In normal times, without a war for civilization on our hands, we would hail the men who are accomplishing this as benefactors of mankind."

Textile Notes.

The Wiscasset Mills, Albemarle, N. C., will, it is reported, have their capacity increased by the erection of another large mill soon. Already they have 85,000 spindles and 500 knitting machines.

The Mays Hosiery Mills, Nashville, Tenn., are reported about to add some equipment to their plant.

Will Make Men's Hosiery.

The Eureka Hosiery Mills, recently incorporated at Lowell, N. C., will manufacture men's halfhose, and the equipment at the beginning will be 30 knitting machines. C. M. Robinson will be president, and Frank D. Phillips, treasurer.

Mills Purchase Additional Factory Building.

Chester Knitting Mills Corporation, J. H. Rickmann, president, has bought factory southeast corner Laclede and Vandeventer avenues, St. Louis, Mo., to accommodate greatly increased volume of business of its finishing plant and distributing station in that city. Extensive alterations and improvements to be made next spring. Company has mills at Chester, Sparta, Waterloo, Collinsville and Effingham, Ill. Operations of the mills to be generally enlarged.

10,000 Spindles to Begin With.

The Alexander Manufacturing Co., Forest City, N. C., which was organized last spring with authorized capital stock of \$200,000, and which began the construction of a mill 230x81 feet in dimensions in May, expects to be ready for operation by January. Electric power will be used and 10,000 spindles will be installed besides other machinery. The product of the plant will be hosiery yarns on cones for knitters, the sizes ranging from 22s to 32s. J. F. Alexander is president; L. V. Lee, vice-president, and J. R. Moore, secretary, treasurer, agent and buyer.

Improving Texas Short Line Railroads.

Austin, Tex., September 28—[Special.]—Although the Texas State Railroad Commission has been relieved by the Federal Railroad Administration of authority over practically all railroads having interstate connections, it still has under control about 2000 miles of short line railroads. The commission is devoting much attention to strengthening their wholly intrastate lines of transportation. Some of the roads were in poor physical condition and improvements have been ordered. Many of the short lines are in the yellow pine forest region of Eastern Texas, and are devoted chiefly to log and lumber transportation.

Construction Department

EXPLANATORY

The MANUFACTURERS RECORD seeks to verify the items reported in its Construction Department by full investigation. It is often impossible to do this before the item must be printed or else lose its value as news, and in some items it is found advisable to make statements as "reported" or "rumored," and not as positive information. If our readers will note these points they will see the necessity of the discrimination. We are always glad to have our attention called to errors that may occur.

DAILY BULLETIN

The Daily Bulletin of the Manufacturers Record is published every business day in order to give the earliest possible news about new industrial, commercial, building, railroad and financial enterprises organized in the South and Southwest. It is invaluable to manufacturers, contractors, engineers and all others who want to get in touch at the earliest moment with new undertakings, or the enlargement of established enterprises. The subscription price is \$20.00 per year.

AIRPLANE PLANTS, STATIONS, ETC.

Ky., Hopkinsville.—Edwards Development Co., capital \$150,000, inceptd. by D. G. Edwards, John L. Rivers, Geo. R. Stow and R. E. Cooper; will manufacture aircraft, bombing machines and bombs.

Tex., Galveston.—Naval Air Station.—Navy Dept., Lieut. L. B. Hyde, Chief Engr. Air Service of Galveston Dist., American National Insurance Bldg., let contract to Horton & Horton of Houston, Tex., for filling and bulkheading on site of \$3,000,000 naval air station. (Details of buildings lately noted.)

BRIDGES, CULVERTS, VIADUCTS

Ark., Texarkana.—Miller County Comms. contemplate constructing bridge across Sulphur River.

Fla., Quincy.—Gadsden County Comms. will construct bridge across Apalachicola River at River Junction; issued \$30,000 bonds.

Ga., Atlanta.—Fulton County Comms., W. L. Gilbert, Chmn., contemplates building concrete bridge across Peachtree Creek on Piedmont Ave.

Md., Goldsboro.—Caroline County Comms., Denton, Md., let contract to Luten Bridge Co., York, Pa., to construct bridge at Sandy Island; reinforced concrete; 225 ft. long; 20 ft. wide; arch type; cost \$26,800.

Mo., Kansas City.—City let contract Jas. G. Glennon, Massachusetts Bldg., Kansas City, to rebuild bridge at 50th and Blue River.

S. C., Gaffney.—City and Southern Ry. (B. Herman, Chief Engr., Charlotte, N. C.) will construct bridge at Montgomery St.; driveway and 2 sidewalks; cost \$25,000.

Tex., Canadian.—Hemphill County voted \$6000 bonds to construct bridges and roads. Address County Comms.

Tex., Lufkin.—Angelina County will construct 2 reinforced concrete bridges and 2300 lin. ft. timber bridges in connection with building of Lufkin-Nacogdoches Road; Joe McCarthy, Highway Engr., receives bids until Sept. 30. (See Road and Street Work and Machinery Wanted—Road and Bridge Construction.)

Tex., Lockhart.—Caldwell County Comms. contemplate construction of 100-ft. span steel bridge over Plum Creek.

Va., Bristol.—Norfolk & Western Ry., J. E. Crawford, Chief Engr., Roanoke, Va., let contract W. W. Boxley & Co., Roanoke, Va., to construct reinforced concrete bridge across tracks at Mary St. (Lately noted.)

Va., Norfolk.—Government authorized construction of viaduct over trolley tracks across Maryland Ave. at army base; reinforced concrete; length 1700 ft.; height 27 ft.; include space for double street-car tracks, two 8-ft. sidewalks and 32-ft. roadway; cost \$300,000 to \$350,000; construction under supervision of A. O. Leach, Supvr. Engr. of Construction at army supply base.

Va., Norfolk.—Virginia Railway & Power Co. will construct drawbridge across Tanner's Creek; steel and concrete; height 40 ft.

W. Va., Clarksburg.—City defeated \$325,000 bonds for improvements as follows: \$175,000 for bridge construction and repairs, \$100,000 for improvement and extension of water-works, and \$50,000 for erection of fire station and equipment; Joe N. Craddock, Mayor. (Lately noted to vote.)

W. Va., Franklin.—Pendleton County Comms. let contract to J. L. Richmond of Franklin at \$2999 to construct 40-ft. span

deck-girder bridge over Smith Creek, 1½ mi. from Franklin.

CANNING AND PACKING PLANTS

Fla., San Antonio.—San Antonio Packing & Supply Co. inceptd.; M. F. Lathers, Prest.; J. A. Barthle, V.-P.; J. A. Stevens, Secy.-Treas.

Ga., Atlanta.—Georgia Preserving Co., capital \$100,000, inceptd. by John L. Cody, C. H. Calhoun and H. W. Finch; manufacture vinegar, pickles, preserves, etc.

Okla., Tulsa.—Independent Packing Co. will rebuild plant reported burned at loss of \$50,000.

COAL MINES AND COKE OVENS

Ga., Dalton.—Jacobs-Glaser Mining Co., capital \$100,000, inceptd. by A. L. Jacobs, Geo. E. Glaser and others.

Ky., Chavies.—Verdun Coal Co., Wm. Hayslett, Mgr., Lexington, Ky., lately noted increasing capital to \$15,000, develops 200 acres; daily output 200 tons.

Ky., Lexington.—Mineral Development Co. will develop additional coal land.

Ky., Lexington.—Swift Coal & Lumber Co. will develop additional coal land.

Ky., Willard.—Black Raven Coal Co., W. H. Norris, Gen. Mgr., will install electrical machinery, mining screens, coal-cutting machinery, etc.; contemplates daily output of 1000 tons.

Okla., Tulsa.—Tulsa Coal Mining & Contracting Co., Mayo Bldg., inceptd., \$15,000 capital, by W. F. Garretson, A. A. Warren and J. H. Wolverton. (Supersedes previous item.)

Tenn., Kingston.—Emory Gap Mining Co., capital \$50,000, inceptd. by H. M. Carr, John W. Staples, W. C. Thompson and others.

Va., Lebanon.—Cinch Coal Co., capital \$3000, inceptd.; T. B. Lynch, Prest., Lebanon; D. W. Call, Secy.-Treas., Swords Creek, Va.

W. Va., Buckhannon.—Meadow Pine Fuel Co. organized; Enoch Bellis, Prest.-Mgr.; H. M. Bellis, Secy.-Treas. (Lately noted inceptd., \$5000 capital.)

W. Va., Hartland.—Clay County Fuel Co., 1000 Kanawha Nat. Bank Bldg., Charleston, W. Va., organized; Wm. T. George, Prest., Philippi, W. Va.; A. A. Lilly, 1st V.-P.; A. J. Peck, 2d V.-P.; S. A. Moore, Secy.-Treas.; all of Charleston; develop 600 acres; daily output of 100 tons, to be increased. (Lately noted inceptd., \$100,000 capital.)

W. Va., Radnor.—Burk Coal Co., 600 Johnston Bldg., Huntington, W. Va., organized; John L. Corcoran, Prest.; U. S. G. Anderson, Secy.; F. B. Hough, Treas.; owns and operates Laurel Creek Coal Co. and Radnor Coal Co.; wagon operation at present; contemplates building tipples and installing plant.

COTTON COMPRESSES AND GINS

Ark., Monette.—Farmers' Monette Gin & Mill Co., capital \$8000, inceptd.; A. R. Linsford, Prest.; W. S. Harris, V.-P.; W. G. Magers, Secy.-Treas.

Fla., Fellsmere.—Fellsmere Company will install long staple cotton gin; daily capacity 5 bales cotton; purchased machinery.

S. C., Fort Mill.—Fort Mill Gin Co., capital \$20,000, organized; acquires established cotton gin and will operate; contemplates erecting cottonseed-oil mill.

Tex., Bronson.—Bronson Gin & Grist Co.,

capital \$4000, inceptd. by E. E. Harris, G. E. Casey and J. W. Meadow.

COTTONSEED-OIL MILLS

S. C., Fort Mill.—Fort Mill Gin Co. contemplates erecting cottonseed-oil mill. (See Cotton Compresses and Gins.)

DRAINAGE SYSTEMS

Ky., Morganfield.—Union County Board Drainage Comms., Norman R. Orcutt, Chief Engr. and Secy., Morganfield, will ask bids within next 2 weeks to construct Smith Ditch; 400,000 cu. yds. earth excavation; 4½ mi. open ditch; floating dredge work.

Mo., Orrick.—Ray County Comms., Richmond, Mo., receive bids about Jan. 1 to construct drainage system to cover 1500 acres near Orrick, including ditches and levees; cost \$20,000; C. E. Jacoby Engineering Co., Engr., 527 Shubert Bldg., Kansas City, Mo.

S. C., Foreston.—Clarendon County Drainage Dist. No. 3, Courtney Campbell, Secy., Greeleyville, S. C., let contract W. H. Hanna of Foreston to construct Foreston and Greeleyville ditch; length 15 mi.; 173,000 cu. yds. excavation. (Call for bids lately noted.)

ELECTRIC PLANTS

Ark., Sparkman.—Edward Hearn will rebuild burned electric-light plant.

Fla., Palm Beach.—Palm Utilities Co., capital \$50,000, inceptd.; A. Blair Ridington, Prest.-Treas.; Geo. A. Lowry, V.-P.; F. L. Ridington, Secy.

Ky., Prestonsburg.—Eastern Kentucky Service Co., capital \$5000, inceptd. by W. S. Wells and others; will install power plant.

Ky., Whitesburg.—Elkhorn-Jellico Coal Co. contemplates erecting power plant.

Md., Camp Meigs.—War Dept., Washington, let contract Frank L. Wagner, 1413 H St. N. W., Washington, to erect electric-power plant and laundry at Camp Meigs, near Washington; F. B. Wheaton, Advisory Archt.; F. M. Gunby, Advisory Engr.; both of 7th and B Sts. S. W., Washington. (Lately noted.)

Md., Cumberland.—Edison Electric Illuminating Co. will extend electric system through Ridgetdale addition to Cumberland.

N. C., Belhaven.—City, N. B. Mariner, Mayor, will make electric-light improvements; bids until Oct. 8 on 100 H. P. crude oil engine; 90 K. V. A., engine-type, 2300-volt alternator, exciter and switchboard; power-house; Wm. M. Platt, Engr., Durham, N. C.; \$25,000 bonds lately noted issued. (See Machinery Wanted—Electric-light Equipment.)

Tex., Eastland.—Eastland Light & Power Co., capital \$250,000, inceptd. by W. B. Monson, P. A. Rogers and R. Van Campen.

Tex., Granbury.—R. A. Grundy will rebuild light, power, ice and water plants reported burned at loss of \$20,000.

W. Va., Clay.—Clay Utility Co., capital \$10,000, inceptd. by S. W. Bryant, S. S. McLane, W. S. Pierson and B. C. Eakle.

FLOUR, FEED AND MEAL MILLS

Fla., Fort Pierce.—Fort Pierce Feed & Grain Co. will erect building 80x80 ft.

Ky., Sand Hill.—Clint Floyd will rebuild grist and sawmill.

S. C., Rock Hill.—Victory Milling Co. organized with J. B. Sykes, Prest.-Secy.; C. S. McCrayer, V.-P. and Mgr.; let contract for erection of 50x25-ft. fireproof building; machinery contract placed; daily capacity 100 bu. corn. (Lately noted, \$10,000 capital.)

Tex., Bronson.—Bronson Gin & Grist Co., capital \$4000, inceptd. by E. E. Harris, G. E. Casey and J. W. Meadow.

FOUNDRY AND MACHINE PLANTS

Ala., Birmingham.—Pipe, etc.—Southern Pipe & Foundry Co. increased capital to \$100,000.

Fla., Key West.—Machine Shop.—Bureau Yards and Docks, Navy Dept., Washington, has plans for machine-shop addition to cost \$3200 and for 4 additional buildings.

Ky., Covington.—Machine Tools.—Willard Machine Tool Co. has plans by C. C. & E. A. Weber, Citizens' National Bank Bldg., Cin-

cinnati, O., for frame addition to machine shop; 140x60 ft.; cost \$15,000.

Md., Baltimore.—Forge Shop.—Poole Engineering & Machine Co., Woodberry, let contract Hicks, Tase & Norris, 106 W. Madison St., Baltimore, to erect forge shop; 1 story brick; 30x104 ft.; tin roof.

Mo., St. Louis.—Machine Shop.—John R. Rummel Machine Co., Wm. Rummel, Prest., 3005 Main St., will erect addition to machine shop; 4 stories; 45x108 ft.; Koerner Engineering Co., Engr., Odd Fellow's Bldg., St. Louis.

Tex., Nocona.—Machine Shop.—Nocona Machine Shop & Mfg. Co. organized; A. I. Albert, Prest. and Mgr.; N. B. Parrack, V.-P.; Willie Lee Holcomb, Secy.; erect 40x100 ft. building; ordinary construction, concrete floor; cost \$5000; install blacksmithing, machine-shop equipment, etc. Lately noted inceptd., \$10,000 capital. (See Machinery Wanted—Lathes.)

Va., Richmond.—Marine Boilers.—Newport News Shipbuilding & Dry Dock Co., F. J. Palen, V.-P., Newport News (through United States Shipping Board of Emergency Finance Corp.), let contract to John T. Wilson & Co., Richmond, to erect marine boiler works on west side of James River near South River; consist of main building, 600x400 ft., and smaller structures for power plant, oil storerooms and service buildings; main building of steel, with glass and brick curtain walls; machinery will consist of standard boiler-shop equipment for constructing marine boilers; estimated total cost \$2,000,000; expects to complete plant in 9 mo.; then employ 800 men. (Lately noted to have determined details for this plant.)

W. Va., Mount Hope.—Machine Shop.—New River Co. contemplates erecting machine shops and warehouse; cost \$75,000 to \$90,000.

GAS AND OIL ENTERPRISES

Ark., De Witt.—Haley Oil & Gas Co., capital \$25,000, inceptd.; W. C. Poynter, Prest.; C. W. Fox, V.-P.; C. W. Beale, Secy.; R. D. Rasco, Treas.

Ky., Jackson.—Big Six Oil Co., A. C. Carpenter, Secy., previously noted inceptd., will install tubing, casing, etc.; capital \$20,000. (See Machinery Wanted—Tubing, Casing, etc.)

Okla., Enid.—Oil Refinery.—Leete Refining Co., capital \$100,000, inceptd. by H. B. Simpson, H. C. Leete and H. C. McKeever.

Okla., Enid.—Cootie Oil Co., capital \$20,000, inceptd. by S. P. Shelburne, Joe Truitt and Guy S. Manatt.

Okla., Foreman.—Pipe Line.—Prairie Pipe Line Co., Wann, Okla., will extend pipe line from Wann to Foreman field; install oil pumping equipment.

Okla., Muskogee.—Dardanelle Oil & Gas Co., capital \$75,000, inceptd. by S. E. Miller, J. F. George and W. L. Fowles.

Okla., Quay.—Gasoline.—C. F. Noble will erect absorption gasoline plant; cost \$25,000.

Tex., Cisco.—Ranger-Cisco Oil Co., capital \$500,000, inceptd. by J. J. Patterson, J. W. Triplett and others.

Tex., Eastland.—Great Southern Oil & Refining Assn., Linz Bldg., Dallas, Tex., present capital \$400,000, has let contract to drill oil well near Eastland. (In July noted organized, \$1,000,000 capital, O. B. Colquhoun of Dallas, Prest., to drill for oil, and as considering removal of refinery from Oklahoma to Eastland.)

Tex., Plainview.—Conservative Oil Co., capital \$35,000, inceptd. by E. Lee Dye, M. P. Garner and R. A. Underwood.

Va., Yorktown.—Navy Dept. let contract F. W. Mark Construction Co., Finance Bldg., Philadelphia, Pa., to construct fuel-oil plant; cost, with equipment, \$600,000. (Noted in Aug. as inviting bids.)

W. Va., Spencer.—Gasoline Refinery.—Interstate Gasoline & Oil Co., Fulton Bldg., Pittsburgh, Pa., will erect gasoline refinery; 1 story; 30x50 ft.; includes concrete engine-house, compressor-house, pump-house and office building; construction by owner; E. W. Emmens, Engr., Fulton Bldg., Pittsburgh.

ICE AND COLD-STORAGE PLANTS

Tex., Granbury.—R. A. Grundy will rebuild ice, water, light and power plant reported burned at loss of \$20,000.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

W. Va., Logan.—Armour & Company (main office, Chicago) will erect cold-storage warehouse; 4 stories and basement; plans by R. C. Clark, care of Armour & Company, U. S. Yards, Chicago, Ill.

IRRIGATION SYSTEMS

Tex., Harlingen.—Cameron County, Irrigation Dist. No. 1, will improve irrigation system; protect and irrigate 32,000 additional acres; has installed engines and pumps.

LAND DEVELOPMENT

Fla., Bradentown.—Jas. L. Waterbury Co., Vanderipe Bldg., will develop 10,000 acres as fruit orchard.

N. C., Mount Holly.—American Processing Co., engaged E. S. Draper, Landscape Archt., Charlotte, N. C., to prepare plans for mill village and grounds.

S. C., Charleston.—Carolina Fig Growers' Assn., capital \$25,000, incptd. by John W. Ruff, Starr W. Shelby and Geo. A. Nash.

S. C., Charleston.—Saluda Corp., capital \$38,000, incptd. by H. L. Erckmann and M. V. Elfe.

Virginia.—Virginia Development Co., capital \$100,000, incptd. by F. D. Buck, New Castle, Del.; M. L. Harty and J. D. Frock, Wilmington, Del.

LUMBER MANUFACTURING

Ala., Bay Minette.—Star Lumber Co., capital \$100,000, incptd. by Lynn H. Dinkins, E. J. Buck and others.

Ala., Montgomery.—Central Lumber & Mfg. Co., capital \$20,000, incptd. by L. E. Rollins, J. M. Dennis and O. K. Hollon.

Ala., Sandow.—Laubenthal Lumber Co. increased capital to \$50,000.

Ark., Little Rock.—Arkansas Shortleaf Lumber Co. increased capital from \$100,000 to \$1,500,000.

Ark., Snyder.—Ashley Lumber Co., J. P. Holmes, Pres.-Mrg., Hamburg, Ark., lately noted increasing capital from \$40,000 to \$50,000, continues operation of plant; daily capacity 50,000 ft. yellow pine and oak lumber; not planning additions.

Fla., Lake Helen.—G-I Lumber Co., capital \$10,000, incptd.; S. Ingalls, Pres.; W. H. Goulding, Secy.-Treas.

Fla., Tampa.—Ansley Lumber Co. increased capital to \$10,000.

Ky., Sand Hill.—Clint Floyd will rebuild saw and grist mill.

Ky., Whitesburg.—Lee Smith and others purchased 1000 acres of hardwood timber land along Carr's Fork in Knott County; contemplate development.

Ky., Whitesburg.—S. K. Baird and others purchased hardwood timber land on Big Cowan Creek, near Whitesburg; will develop; install lumber and stave mills.

N. C., Crestmont.—Suncrest Lumber Co. (D. R. Holder, V.-P. Union Trust Co., Chicago, interested) will be organized to take over property of Champion Lumber Co., including 90,000 acres timber land, 2 sawmills (at Crestmont and Sunburst), stores and logging railways; much spruce in timber; Army Engrs. now extending railway lines for development of spruce for airplane construction.

Tenn., Dickson.—White Bluff Tie & Lumber Co., capital \$1000, incptd. by W. H. W. James, J. A. Johnson, G. J. Cortley and others.

Tex., Houston.—Liberty Hardwood Milling Co. increased capital from \$30,000 to \$50,000.

MINING

Ga., Sugar Valley.—Iron Ore.—Lafollette Coal & Iron Co., Lafollette, Tenn., will develop 1000 acres of iron-ore land; install mining plant.

Okl., Miami.—Oklahoma Mining & Engineering Co., capital \$10,000, incptd. by J. McNicholas, W. H. Loderer and O. A. Herro.

Okl., Miami.—Lead and Zinc.—Prairie Lead & Zinc Co. will build 150-ton mill.

Okl., Muskogee.—Baxter Springs Mining Co. organized, capital \$100,000; J. F. Sartin, Pres., 133 S. 2d St. (address after Nov. 15, 236 Frisco Bldg., Joplin, Mo.); W. O. Manner, Secy., Muskogee; develop 40 acres.

Okl., Picher.—Lead and Zinc.—Southeast Missouri Mining Co. will erect 300-ton mill.

Okl., St. Louis.—Lead and Zinc.—Lucky Dozen Mining Co. is reported to erect mill.

Okl., Quapaw.—Long-Hunt Mining Co. will erect mill.

Okl., Watson.—Lead and Zinc.—Watson

Lead & Zinc Mines, capital \$25,000, incptd. by Calvin Watson and Jas. R. Blake of Watson, and Chas. E. Nelson of Buffalo, N. Y.

Tenn., Columbia.—Phosphate.—Armour Fertilizer Works (branch of Armour & Company, Chicago) contemplates erection of phosphate mining plant; cost \$100,000.

Tex., Port Arthur.—Sulphur.—Southern Acid & Sulphur Co., East St. Louis, Ill., is reported to develop sulphur properties and manufacture sulphuric acid, with offices at Port Arthur and Texarkana.

MISCELLANEOUS CONSTRUCTION

Ala., Fort Morgan.—Wharf.—Bids at office of Custodian, United States Quarantine Station, Mobile Quarantine, Fort Morgan, until Oct. 16 for repairs to wharf, etc.; drawings and specifications from Custodian.

Ark., Arkansas City.—Levee.—Mississippi River Comsn., Vicksburg, Miss., contemplates constructing loop for levee; 3x6-ft. ditch in center for entire length; height of levee 18 ft.; 150-ft. base; banquet 40 ft.

Fla., Pensacola.—Heating Plant.—Navy Department, Washington, let contract to C. A. Born of Pensacola at \$10,250 to build heating plant.

La., Baton Rouge.—Levees, etc.—Board of State Engrs., Frank M. Kerr, Chief Engr., New Orleans Court Bldg., let following contracts for levee and wooden revetment construction: Lower Coast Construction Co., 122 Chartres St., New Orleans, Bayou Lamoque Levee, 17,500 cu. yds., and from Fort St. Phillip to Olga Levee, 55,000 cu. yds. new levee, 6900 cu. yds. enlargement, 6500 cu. yds. wave wash repairs; total length of revetment 1600 ft.; to S. P. Schoenberger and A. Buras, Triumph, La., for Boothville to Venice drainage canal levee, enlargement and wood revetment; total length 10,000 lin. ft.; contents 25,000 cu. yds. earth work.

La., New Orleans.—Levees.—Port Commrs. let contract Hampton Reynolds to construct levees along Industrial Canal from lock to river. (Details of construction of industrial canal lately noted.)

Tex., Beaumont.—Quay Walls.—City, C. L. Scherer, City Engr., will construct 500-ft. quay wall; wood piling and deck, with concrete above water; construction by city force.

Tex., Dallas.—Levees.—Dallas County, Bois D'Arc Island Levee Dist., voted \$144,700 bonds to construct levees; Quentin D. Corley, County Judge, Dallas. (Supersedes recent item.)

Va., Norfolk.—Dredging and Wharf.—Navy Dept., Washington, D. C., has plans for dredging and wharf to cost \$176,000.

W. Va., Wheeling.—Dam.—United States Engr. Office let following contracts for work on Ohio River Dams Nos. 23, 25 and 27: Roanoke Iron & Bridge Works, Roanoke, Va., structural works, \$10,040; beartap leaves and piping, \$104,157; C. Hegewald Co., New Albany, Ind., steel castings, \$41,099; Centre Foundry & Machine Co., Wheeling, iron castings, \$17,825; Independent Bridge Co., 829 Beaver Ave., Pittsburgh, Pa., bolts, spikes, etc., \$5000; anchor beams, brackets, etc., \$52,400; Penn Bridge Co., Beaver Falls, Pa., forgings, \$9440; valves and castings, \$7440.

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Md., Camp Meigs.—Laundry.—War Department, Washington, let contract Frank L. Wagner, 1413 H St. N. W., Washington, to erect laundry and power plant at Camp Meigs, near Washington; F. R. Wheaton, Advisory Archt.; F. M. Gundy, Advisory Engr.; both of 7th and B Sts. S. W., Washington. (Lately noted.)

Mo., Independence.—Dairy.—Independence Dairy Co., capital \$30,000, incptd. by H. T. Grubb, Homer E. Ware, J. B. Sorency and others.

Okl., Oklahoma City.—Garbage-Disposal Plant.—City will build garbage-disposal plant; M. Peshnek, Jr., City Clk.

S. C., Latta.—Publishing.—Latta Publishing Co., capital \$2500, incptd.; B. K. Atkinson, Pres.; F. M. McMillan, V.-P.; J. C. Shepard, Secy.-Treas.

Tex., Dallas.—Laundry.—Troy Laundry Co., capital \$10,000, incptd. by M. Murphy, Matthew Galvin and W. J. Moroney.

Va., Seven Pines.—Powder Packing.—War Department, Washington, is reported to have authorized doubling size of powder-packing plant now being erected at Seven Pines, 5 mi. from Richmond, increasing cost of construction from \$3,000,000, as at first contemplated, to from \$4,000,000 to \$5,000,000; after enlargement will employ 5000 to 6000 operatives instead of 3000 as previously expected; E. I. du Pont de Nemours & Co., Wilmington, Del., to operate plant for Government; Foundation Company, Woolworth Bldg., New York, has entire construction contract. (Original plans, as reported in May, contemplated plant comprising 140 units on site of 1740 acres, with facilities to include electric-power plant, heating equipment, large warehouses and 40 mi. of railway trackage, all buildings to be sufficiently apart to minimize danger from explosion.)

W. Va., Charleston.—Printing.—Kanawha Drug Co., 925 Virginia St., will erect printing plant; 2 stories and basement; 32x60 ft.; let contract to W. A. Abbott, 12 Columbia Ave., Charleston.

W. Va., Wheeling.—Mineral Pulverizing.—Wheeling Pulverizing Co., capital \$25,000, incptd. by S. J. Windsor and O. W. Leonhart.

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Tex., Port Arthur.—Sulphuric Acid.—Southern Acid & Sulphur Co., East St. Louis, Ill., is reported to manufacture sulphuric acid. (See Mining.)

Va., Norfolk.—John D. Westbrook, 409 Water St., let contract Johnson Construction Corp., Law Bldg., Norfolk, to erect factory; 2 stories; cost \$10,000.

W. Va., Fairmont.—Phosphorous.—War Department, Washington, D. C., will build phosphorous plant; install electrical machinery; secure electricity from Rivesville power station now under construction by Monongahela Valley Traction Co.; Capt. W. W. Huff and Lieut. A. D. McClellan are now in Fairmont representing Government in erection of plant.

W. Va., Huntington.—Caustic Potash.—Northern Alkali & Chemical Co. organized; Ralph D. Lamie, Pres.-Mrg.; John Garvin, Secy.-Treas., both of Huntington; L. E. Garvin, V.-P., Marquette, Mich.; leased building; install tanks, kettles and filter press; machinery cost \$5000; daily product 1000 lbs. caustic potash. Lately noted incptd., capital \$60,000. (See Machinery Wanted—Kettles; Tanks.)

W. Va., Mullens.—Bakery.—Wyoming Baking Co., W. U. Tate, V.-P., will erect 30x109-ft., ordinary-construction building, cost \$25,000; plans by A. W. Wysong, Princeton, W. Va.; O. L. Collier, Constr. Engr., Mullens; install machinery, cost \$10,000; daily capacity 20 to 25 bbls. flour. (See Machinery Wanted—Bakery Equipment.)

W. Va., Sutton.—Wood Chemicals.—Sutton Chemical Co., Wm. McCabe, Mgr., will erect retort-house; 1 story, 53x157 ft., and 1 story, 48x145 ft.; cost \$790,000; has plans. (Noted in May to build additional factory on south side of Elk River.)

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Clarksville and Hagerstown, 13 mi., cost \$56,772.76.

Fla., Bradentown.—State Road Dept., Wm. F. Cooke, Tallahassee, and Manatee County Comms., Bradentown, will grade, drain and surface with shell 11 mi. road from Hillsborough County line, via Parrish, to Bradentown; bids until Oct. 7. (See Machinery Wanted—Road Construction.)

Fla., Miami.—City will construct bituminous surface of sand and asphalt on streets in Fort Dallas Park; 2392 sq. yds.; bids until Oct. 10; W. E. Moore, City Clerk. (See Machinery Wanted—Paving.)

Ga., Atlanta.—City will pave Stewart and Lakewood Aves. and Pryor St. W. E. Chambers, Purchasing Agent.

Ga., Columbus.—City and Muscogee County Comms. contemplate expending \$100,000 for paving between city and infantry camp being established near Columbus. Address Mayor or Comms.

Ky., Louisville.—City will construct paving on Sixth, Market, Broadway, Breckenridge, Brook and Fourth Sts.; soon let contract; D. R. Lyman, City Engr.

La., Gretna.—Jefferson Parish Police Jury plans construction of earth road between New Orleans and Kenner.

Mo., Kansas City.—City contemplates paving Sixth St., from Broadway to Inter-City viaduct; Curtis Hill, City Engr.

N. C., Durham.—Durham County Comms. will expend \$200,000 to improve Main Road across county from Wake County to Orange County line.

N. C., Wilmington.—Government Heights Corp., J. J. Nyhoff, Treas., asks bids, for opening Oct. 30, on 5300 ft. grading and graveling; W. K. Allen, Engr. Lately noted. (See Machinery Wanted—Paving.)

S. C., Columbia.—City contemplates paving Two Notch, Trenholm and old Camden Rds. leading to Camp Jackson. Address The Mayor.

S. C., Gaffney.—Cherokee County Highway Commn., W. C. Harriek, Chrmn., issued \$25,000 bonds for road construction.

Tenn., Bristol.—City will not, at present, construct street paving; rejected bids previously noted for Sept. 23. (See Va., Bristol.)

Tenn., Jacksboro.—Campbell County Highway Comms., J. F. Cooper, Secy., ask bids until Oct. 28 to macadamize 13 mi. pk. road, between La Follette and Jellico. (See Machinery Wanted—Road Construction.)

Tenn., Nashville.—State Dept. of Highways, A. M. Nelson, State Highway Commr., 327 7th Ave., North, rejected bids for road construction; 10.89 mi. in Franklin County; 12.27 mi. in Bedford and Moore counties; 2.64 mi. in Greene County; estimated cost \$130,000; construction will be undertaken by county labor under supervision of State Highway Engr. (Call for bids and further facts lately noted.)

Tex., Athens.—Henderson County Comms. will construct Henderson County Highway No. 31; have \$11,340 State aid.

Tex., Big Spring.—Howard County contemplates voting on \$75,000 bonds for road construction. Address County Comms.

Tex., Canadian.—Hemphill County voted \$6000 bonds to construct roads and bridges. Address County Comms.

Tex., Canton.—Van Zandt County Comms., L. Davidson, County Judge, will construct 19 mi. of State Highway No. 15 (Dixie Highway from Kaufman County line to Canton); 86,000 cu. yds. earth excavation, hauling, spreading and rolling 32,000 cu. yds. of gravel and rock and 850 cu. yds. of reinforced concrete; bids until Oct. 8; A. B. Axtell, Dist. Engr., Willis Point, Tex. (See Machinery Wanted—Road Construction.)

Tex., Dallas.—City will pave with bituminous sections of Colonial, Second, Elihu and Gaston Aves., Holmes, Beacon and Main Sts.; Hal Moseley, City Engr.

Tex., Dallas.—Dallas County Comms. will construct Maple Ave. road from city limits to entrance of Love Field; surface with rock and bituminous paving.

Tex., De Leon.—Chamber of Commerce is promoting construction of road to Duke oil field; cost \$50,000.

Tex., Eastland.—Eastland County, Rising Star Dist. No. 4, voted \$75,000 bonds toward construction of Cisco-Brownwood highway. Address County Comms.

Tex., Falfurrias.—Brooks County Comms., O. D. Kirkland, Clerk, will construct 20 mi. of Falfurrias-Encino Rd., including bridges; bids opened Sept. 26.

Tex., Fort Worth.—City contemplates expending \$35,000 to repair paved streets; F.

J. Von Zuben, City Engr.

Tex., Fort Worth.—Tarrant County Comms. will construct road from Eighth Ave. to Texas Christian University.

Tex., Houston.—Harris County Comms. will construct Harris County Highway No. 19; has \$20,000 State aid.

Tex., Jasper.—Jasper County will grade and surface 25.5 mi. of road; include construction of concrete drainage structures; portion of State Highway, No. 8; C. C. Brown, County Judge, receives bids until Oct. 15; has \$20,345 State appropriation. G. R. Abney, County Engr. (See Machinery Wanted—Road Construction.)

Tex., Lufkin.—Angelina County will construct Lufkin-Nacogdoches Road; include grading, surfacing with gravel, 2 reinforced concrete bridges, 2200 lin. ft. timber bridges and corrugated iron pipe; Joe McCarthy, Highway Engr., receives bids until Sept. 30. (See Machinery Wanted—Road and Bridge Construction.)

Tex., New Braunfels.—Comal County Comms. will construct Comal County Highway No. 2; have \$7500 State and \$7250 Federal aid.

Tex., Seguin.—City will pave 2 mi. of streets. Address The Mayor.

Tex., Seminole.—Gaines County contemplates voting on \$200,000 road bonds. Address County Comms.

Tex., Sherman.—Grayson County voted \$50,000 bonds for road construction. Address County Comms.

Tex., Weatherford.—Parker County, E. A. Swofford, County Judge, will vote Oct. 5 on \$400,000 bonds for road construction; plans for construction not fully decided. (Lately noted.)

Va., Bristol.—Cities of Bristol, Va., and Bristol, Tenn., jointly rejected bids and indefinitely postponed street construction. (Bids lately noted for Sept. 23.)

Va., Richmond.—City will lay spall paving on Second St., from Broad to Clay Sts.; city to furnish stone; bids opened Sept. 27; Chas. E. Bolling, City Engr.

Va., Richmond.—City will pave Fourth St. (South Richmond) from Stockton St. to Seaboard Air Line Ry. right of way grading; Chas. E. Bolling, City Engr., receives bids until Oct. 4 for grading, setting granite curbing, spall paving, concrete paving, brick culvert and street inlets and terracotta pipe. (See Machinery Wanted—Paving, etc.)

W. Va., Wayne.—Wayne County will pave with tar-bound macadam 2656 ft. of Piedmont Road; width, 16 ft.; County Court, H. W. Thompson, Prest., receives bids until Oct. 7. (See Machinery Wanted—Road Construction.)

SEWER CONSTRUCTION

Tenn., Nashville.—City Comms. appropriated \$1300 to construct sewer in Wedgewood Ave., Waverly.

SHIPBUILDING PLANTS

Fla., Bradentown.—Barges.—A. A. Barker is interested in organization of company with \$50,000 capital to build barges for Government; plans initial installation of 1 or 2 ways.

Fla., St. Petersburg.—Wooden Ships.—St. Petersburg Maritime & Construction Co. organized; Lew B. Brown, Prest.; W. H. Franklin, V.-P.; F. R. Francke, Secy.; A. F. Thomasson, Treas.; erect mill-construction buildings by company's forces; build wooden ships. Address machinery bids to secretary. (Lately noted inceptd., \$250,000 capital stock.)

TELEPHONE SYSTEMS

Fla., Montverde.—Montverde Telephone Co., capital \$5000, inceptd.; R. W. Harper, Prest.; C. T. Lowry, V.-P.; W. J. Larrimore, Secy.-Treas.

Tex., Fred.—Fred Telephone Co. inceptd. by H. W. McInnis, N. McInnis and Geo. McInnis.

W. Va., Mercers Bottom.—Mercers Bottom Telephone Co. inceptd. by Jas. George, Geo. Wallas, Chas. Hayman and others.

TEXTILE MILLS

Md., College Park.—Maryland State College, A. F. Woods, Prest., will improve water-works.

Mo., St. Louis.—Hosiery.—Chester Knitting Mills of St. Louis and Chester, Ill., purchased building; will remodel and equip as addition to finishing plant and distributing station.

N. C., Albemarle.—Hosiery.—Wiscasset Mills Co. is reported to erect additional mill.

N. C., Cherryville.—Yarn.—Cherryville Mfg. Co. will erect 100-ft. addition; 1 story; mill construction.

N. C., Mount Holly.—Cotton Goods.—Catawba Spinning Co., capital \$200,000, inceptd. by John C. Rankin, S. M. Robinson, R. F. Graig and J. W. Holland.

Tenn., Nashville.—Hosiery.—Mays Hosiery Mills will install additional equipment.

Tex., Granbury.—R. A. Grundy will rebuild water, ice, light and power plant reported burned at loss of \$30,000.

WATER-WORKS

Ark., Nashville.—City voted \$160,000 bonds for water-works. Address The Mayor.

Ala., Sheffield.—Sheffield Co. will construct filtration plant with own forces; Walter G. Kirkpatrick, Birmingham, Ala., Consult. Engr., present address, Box 255, Sheffield. (Lately noted.)

Md., Baltimore.—Baltimore County Water & Electric Co., 100-02 W. Fayette St., issued \$150,000 in notes to provide for improvements to plant and to refund indebtedness.

Miss., Clarksdale.—City Comms. plan construction of reservoir.

Mo., Kansas City.—City let contract to install steam turbine reduction gear centrifugal pumping unit of 20,000,000 gals. daily capacity; appropriation \$123,200; W. G. Goodwin, Chief Engr. and Supt. (Call for bids lately noted.)

Okla., Garber.—City will construct water-works to cost \$25,000; bonds voted; Black & Veach, Engrs., Interstate Bldg., Kansas City, Mo.

Okla., Henryetta.—City contemplates voting on \$100,000 bonds for water-works. Address The Mayor.

S. C., Columbia.—City will extend water system to Camp Jackson; provide 6,000,000 gals. water daily; convert duck pond into settling basin; erect filter-house; install wooden filters; let contract to Hardaway Contracting Co., Columbus, Ga., Fred. C. Wyse, Engr.-Supt.

Tex., Palestine.—City will vote on purchase of Palestine Water Co.'s plant for \$130,000. Address The Mayor.

W. Va., Clarksburg.—City defeated \$100,000 bonds to improve and extend water-works; Joe N. Craddock, Mayor. Lately noted to vote. (See Bridges, Culverts, Viaducts.)

WOODWORKING PLANTS

Ky., Whitesburg.—Staves.—S. K. Baird and others will install stove mills. (See Lumber Manufacturing.)

Md., Salisbury.—Millwork, etc.—Thos. H. Mitchell will rebuild woodworking plant reported burned at loss of \$25,000 to \$30,000.

Miss., Greenwood.—Cooperage.—Big Bend Cooperage Co. will rebuild plant reported burned at loss of \$60,000.

Okla., Pauls Valley.—Woodenware and Boxes.—R. C. Johnston will establish woodenware and box factory; leased building; has equipment.

FIRE DAMAGE

Ala., Anniston.—S. F. Morgan's barn at Oxford Lake.

Ala., Dothan.—Malone Grocery Co.'s buildings; loss on stock and buildings \$100,000.

Ala., Montgomery.—J. P. Minderhout's residence; loss \$2000.

Ark., Huntsville.—F. M. Burkett's barn near Huntsville.

D. C., Washington.—New Willard Hotel, Pennsylvania Ave., 14th and F Sts. N. W.; F. S. Hight, Mgr.

Fla., Fort Myers.—H. E. Bouton's residence.

Ga., Dublin.—Bertha Theater and stables adjacent; estimated loss \$50,000.

Ga., Shady Dale.—Shady Dale Warehouse Co.'s warehouse; Lamar Tucker, Mgr.

Ga., Newman.—A. R. Burdett & Co.'s cotton warehouse, owned by H. C. Arnall Merchandise Co.; loss \$4000 to \$5000.

Ky., Sand Hill.—Clint Floyd's saw and grist mill.

La., Gonzales.—High School; loss \$3000. Address The Mayor.

La., Pioneer.—Willis S. Ross' residence; loss \$2000.

La., St. Martinville.—George Eastin's residence.

Md., Hagerstown.—Dr. D. A. Watkins' barn, 2 mi. from Hagerstown; loss \$500.

Md., Kennedyville.—Milton P. Crew's residence.

Md., Salisbury.—Thos. H. Mitchell's wood working plant; loss, \$25,000 to \$30,000.

Miss., Bay St. Louis.—R. G. Campbell's residence on Campbell's Island.

Miss., Greenwood.—Big Bend Cooperage Co.'s plant; loss \$60,000.

Miss., Macon.—B. M. and Tom Boggs' barn, silo and garage, 3 mi. from Macon; loss \$5000 to \$6000.

Mo., Fayette.—S. C. Major's residence; loss \$2400.

Mo., Kirksville.—Science Hall at Kirksville State Normal School; loss \$100,000.

N. C., Charlotte.—Realty Building damaged to extent of \$8000 to \$8000.

N. C., Forest City.—Hotel Mabree, owned by Dr. T. C. McBrayer; loss \$25,000.

N. C., Franklin.—Baxter Ashe's residence; loss \$2000.

Okla., Drumright.—Eagle Cliff Cafe, Thomas Pool Hall; Hazleton Barber Shop; loss \$15,000 to \$20,000.

Okla., Mangum.—Mrs. L. A. Joins' residence.

Okla., Tulsa.—Independent Packing Co.'s plant; loss \$50,000.

S. C., Cades.—W. L. Hodges' warehouse, G. M. Ward's storehouse and dwelling; J. O. Beaty's storehouse.

S. C., Drayton.—Cottage owned by Drayton Mfg. Co.

S. C., Greenwood.—G. R. Tolbert's residence in Abbeville County.

S. C., Laurens.—Samuel A. Riddle's residence in Young Township.

S. C., Lancaster.—Gregory-Hood Livedon Co.'s feed and storage barn; loss \$5000.

S. C., North Augusta.—North Augusta Warehouse & Fertilizer Co.'s warehouse; loss \$15,000.

Tenn., Chattanooga.—Dr. Y. L. Abernathy's residence, owned by Walter Henson; loss \$10,000.

Tenn., Fayetteville.—Dillard Ames' residence.

Tenn., Fayetteville.—Homer McConnet's residence; loss several thousand dollars.

Tenn., Sewanee.—Sewanee Inn at University of the South; loss \$25,000.

Tex., Calvert.—J. B. Lewis' residence.

Tex., Granbury.—R. A. Grundy's ice, water light and power plant; loss \$30,000.

Tex., Spur.—Spur public school and high school building; loss \$30,000. Address School Trustees.

Tex., Temple.—Carnegie Library; loss \$10,000. Address The Mayor.

Tex., Waco.—Central Motor Co.'s warehouse; loss \$20,000.

Va., Norfolk.—Building occupied by Marine Supply Co., and owned by Mrs. Franklin Gill, Portsmouth; loss \$20,000.

W. Va., Keenan.—Dr. Jas. Edgar Atkins' residence near Keenan; loss \$2000.

W. Va., Williamsburg.—Catholic Church, Rev. J. J. De Laad, Pastor, Roncetto; W. Va.

BUILDING NEWS

BUILDINGS PROPOSED

APARTMENT-HOUSES

Okla., Enid.—John Woken will erect store and flat building; cost \$12,000; R. W. Shaw, Archt., Enid. (See Stores.)

Va., Norfolk.—M. J. Greenwood has plans for apartment-house; 3 suites; 4 stories; 65x78 ft.; brick; cost \$60,000.

Va., Norfolk.—Philip B. Moser, Law Bldg., Norfolk, is preparing plans for frame apartment-house on County St. for owner, whose name is withheld; 2 stories; 2 suites; 25x35 ft.; cost \$6000.

Va., Portsmouth.—Philip B. Moser, Law Bldg., Norfolk, is preparing plans for apartment-houses on Pearl and King Sts. for owners, whose names are withheld; frame

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

ha Theater and
imated loss \$50,000.
Shady Dale Warehouse
mar Tucker, Mgr.
R. Burdett & Co.'s
l by R. C. Arnall
00 to \$5000.
lint Floyd's saw
h School; loss
s S. Ross' residence
—George Eastin's
Dr. D. A. Watkins
erstown; loss \$500.
Milton P. Crew's
s. H. Mitchell's
25,000 to \$30,000.
—R. G. Campbell
's Island.
Big Bend Cooper
and Tom Rogers
3 mi. from Mac
Major's residence;
ce Hall at Kirk
loss \$100,000.
County Building
to \$8000.
Hotel Mabree, own
loss \$25,000.
ter Ashe's residence
Eagle Cliff Cab
zleton Barber
L. A. Joins' re
ndent Packing Co.
Hodges' warehouse
e and dwelling;
e owned by Dray
R. Tolbert's re
A. Riddle's re
p.
ory-Hood Livest
n; loss \$5000.
—North Augus
Co.'s warehouse
Y. L. Abernathy;
alter Henson; lu
Dillard Ames' re
omer McConn
ousand dollars.
ee Inn at Unle
Lewis' residence.
rundy's ice, wat
loss \$20,000.
school and high
0. Address Sch
Library; loss \$
Motor Co.'s wa
occupied by Mar
Mrs. Franklin
000.
s. Edgar Atkins
\$2000.
Catholic Church
stor, Roncove
WS
oser, Law Bldg.
for frame apart
or owner, who
2 suites; 2nd
B. Moser, Law
plans for apart
King Sta. for
withheld; frame
entioned.

construction; 2 and 3 stories; 30x50 ft. and
45x90 ft.; 4 and 9 suites, respectively; former
to cost \$8000.

ASSOCIATION AND FRATERNAL

Ala., Camp McClellan.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will remodel Government postal
exchange building, build administration
building, garage and 2 service buildings;
cost \$28,200.

Ala., Camp Sheridan.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will complete present structure, move
and repair service building and erect aviation
building; cost \$3500.

Ala., Fort Morgan.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect administration building;
cost \$2500.

Fla., Arcadia.—National War Work Coun-
cil, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect officers' and headquarters
building and garage at Carlstrom field; cost
\$3000.

Fla., Camp Joseph E. Johnston.—National
War Work Council, Young Men's Christian
Assn., A. K. Adams, Dept. Supvr. of Con-
struction, Atlanta, will erect addition to
administration building; cost \$3000.

Fla., Fort Barrancas.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect headquarters building;
cost \$10,000.

Fla., Key West.—National War Work Coun-
cil, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect service building at navy-
yard; cost \$5500.

Ga., Camp Gordon.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect \$6000 service building.

Ga., Camp Wheeler.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect addition to administra-
tion, service building; building at rifle range
and garage; cost \$12,050. (Lately noted
having plans prepared by Thos. M. Walker,
Atlanta, for 3 buildings.)

Ga., Fort Oglethorpe.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect addition to administra-
tion building; cost \$5700. (Lately noted
having plans prepared by Thos. M. Walker,
Atlanta, for 2 buildings.)

Ga., Fort Screven.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect addition to present build-
ing; cost \$4500.

Miss., Camp Shelby.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will remodel administration building,
repair garage and erect service building;
cost \$13,200.

N. C., Camp Green.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect addition to administra-
tion building and complete building at rifle
range; cost \$6000.

N. C., Charlotte.—National War Work
Council, Young Women's Christian Assn., 600
Lexington Ave., New York, will erect hostess-
house at Liberty Park; 100x100 ft.; 2 stories;
cost \$28,000; Mrs. Katherine Vedder, Field
Secy. for Southeastern Dept. of Y. W. C. A.

N. C., Fort Caswell.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect addition to building; cost
\$3000.

N. C., Pisgah Forest.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, Ga., will erect headquarters and ser-
vice buildings; cost \$5000.

N. C., Raleigh.—National War Work Coun-
cil, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will erect 2 service buildings; cost
\$17,000.

S. C., Camp Sevier.—National War Work
Council, Young Men's Christian Assn., A. K.
Adams, Dept. Supvr. of Construction, At-
lanta, will remodel administration build-
ing, erect service building and garage; cost
\$14,500.

S. C., Camp Wadsworth.—National War
Work Council, Young Men's Christian Assn.,
A. K. Adams, Dept. Supvr. of Construction,
Atlanta, will build garage and complete
present building; cost \$2100.

S. C., Paris Island.—National War Work
Council, Young Men's Christian Assn., A.
K. Adams, Dept. Supvr. of Construction,
Atlanta, will erect auditorium and service
buildings and remodel present structure;
cost \$19,500.

S. C., Spartanburg.—Salvation Army will
erect hut near Camp Wadsworth; cost \$25,-
000 to \$35,000.

S. C., Spartanburg.—National War Work
Council, Young Men's Christian Assn., 347
Madison Ave., New York, will expend \$10,-
000 for improvements and additions to "Y"
units at Camp Wadsworth; exterior of all
buildings to be of heavier board and finished
on inside; number of dormer windows pro-
vided; siding built from building level to
ground; storm porch built on front of ad-
ministration building; erect additional sup-
ply warehouse; overhaul plumbing, etc.;
Thomas W. Moore, Supt. of construction for
camp.

Tex., Galveston.—Knights of Columbus
Committee on War Activities, W. J.
Moriarty, Director, St. Louis, will erect hut
for marines at 36th St. and Boulevard; 100x
45 ft.; chapel 16x20 ft.; cost \$5000.

W. Va., Grafton.—Grafton Lodge No. 638,
Loyal Order of Moose, will not erect build-
ing, but will purchase structure already
erected. (Lately noted to erect \$20,000 build-
ing.)

BANK AND OFFICE

Ala., Mobile.—Mobile Shipbuilding Co. will
erect 2-story office building; frame; porch;
colonial columns; cost \$15,000.

D. C., Washington.—International Machin-
ists Union is having plans prepared by Mil-
burn, Heister & Co., Union Savings Bank
Bldg., Washington, and begins construction
about Dec. 1 of office and store building at
9th St. and Mt. Vernon Place N. W.; 66x109
ft.; 5 stories and basement; steel frame;
fireproof; slag roof; composition floor;
vacuum steam heat; electric elevator; cost
\$150,000. (Previously noted.)

La., Monroe.—Citizens' National Bank, C.
E. Slagle, Prest., will remodel building;
natural-gas heat; erect building next year.

N. C., Greensboro.—Southern Life & Trust
Co. will not call for bids for building until
after first of year; plans by Chas. Barton
Keen, 1218 Chestnut St., Philadelphia, Pa.,
call for 2-story and basement central build-
ing 44x110 ft., and two 1-story and basement
wings 39x93 ft.; brick exterior walls; fire-
proof floor construction; slate roof; rein-
forced concrete floors. (Previously noted.)

N. C., Lincoln.—County National Bank
will erect bank building; construction begins
in 8 or 10 months.

N. C., Elizabeth City.—First & Citizens'
National Bank, C. H. Robinson, Prest., will
erect addition to building; 3000 ft. additional
floor space; Dennison & Hiron, Archts., 475
Fifth Ave., New York

Tex., Gonzales.—Gonzales Cotton Mills will
erect office building.

Va., Alexandria.—Mutual Ice Co. will erect
office building; 2 stories; 32x40 ft.; cost
\$8000; W. Leon Clark, Archt., 220 S. Fairfax
St., Alexandria; bids opened about Oct. 15.

Va., Richmond.—Federal Reserve Bank,
Geo. J. Seay, Governor, is having plans pre-
pared by Thos. Bruce Boyd, Inc., 286 Fifth
Ave., New York, for alterations to bank
building; stone, brick, steel and terra-cotta;
cost \$35,000.

W. Va., Huntington.—Standard Ultra-
marine Co. will erect office building; 2
stories; brick.

CHURCHES

Fla., Eustis.—Church of Christ will erect
parsonage; plans by and construction under
supervision of W. H. Carr, Leesburg, Fla.

Md., Hagerstown.—St. Mary's Catholic
Church, Rev. Sidney S. Harbut, will erect
church building.

Va., Richmond.—Tenth Baptist Church will
alter building; 1 story; cost \$3000; C. T.
Russell, Archt., Virginia Union University,
Richmond.

CITY AND COUNTY

Fla., St. Augustine.—Market.—City will
erect market building; 120x21 ft. Address
Mayor Ingraham.

Ky., Covington.—Home.—David Davis, First
National Bank Bldg., Cincinnati, previously
noted preparing plans for proposed juvenile

home, states building is deferred indefini-
tely; 175x50 ft.; 3 stories; stone and brick.

La., New Orleans.—Warehouses.—Capital
Issues Committee authorized city to issue
\$600,000 bonds to enlarge and develop cotton
warehouse and grain elevator and develop
shipyards on industrial canal; Martin Behr-
man, Mayor. (Previously noted.)

Mo., Joplin.—Home.—City, H. Phillips,
Clerk, has plans by Smith, Rea & Lovitt,
Finance Bldg., Kansas City, Mo., for addi-
tion to children's home; 2 stories and base-
ment; 29x54 ft.

Mo., Joplin.—City Hall.—City, Hiram Phil-
lips, Clerk, will erect addition to city hall;
3 stories; 40x150 ft.; cost \$15,000; A. H.
Moneth, Archt., Joplin; construction by
day labor. (Lately noted.)

Okla., Pauls Valley.—Auditorium.—City will
have plans revised by J. H. Leedy, Pauls
Valley, for auditorium building. (Previous-
ly noted to open bids Sept. 7.)

Tex., Temple.—Library.—City will probably
erect Carnegie Library to replace structure
noted damaged by fire at loss of \$10,000. Ad-
dress The Mayor.

COURTHOUSES

Ky., Maysville.—Mason County Commrs.
will improve courthouse; hallway will be
freed, Sheriff's office and Superintendent
of School's office repainted and papered,
County Judge's office repaired, etc.

DWELLINGS

Ark., Little Rock.—R. G. Scarborough will
erect 2-story residence; cost \$3500.

D. C., Giesboro Point.—Bureau of In-
dustrial Housing, Otto Eidlitz, Director,
Washington, has plans by Milburn, Heister
& Co., Union Savings Bank Bldg., Wash-
ington, for housing facilities.

D. C., Washington.—D. J. Dunigan, Bond
Bldg., will erect three 2-story brick dwellings,
2919-22 Illinois Ave.; cost \$15,000; plans and
construction by owner.

D. C., Washington.—Guaranty Trust Co.
will erect tile dwelling, 5815 Thirty-first St.;
cost \$6000; construction by owner.

D. C., Washington.—John H. Webb, 88
Fenton St. N. E., will erect frame dwelling,
2638 Monroe St. N. E.; cost \$2700; construc-
tion by owner; B. F. Holmes, Archt., 1601
Rhode Island Ave. N. E., Washington.

Fla., Jacksonville.—J. W. Hill will erect
residence; cost \$3600.

Fla., Jacksonville.—N. Z. Butterick, 2342
Herschell will erect lately-noted dwelling;
29x48.6 ft.; frame; vulcanite roofing; oak
and yellow pine floors; plans and construc-
tion by owner. (See Machinery Wanted—
Flooring.)

Fla., Pensacola.—Scarritt Moreno has
plans by Pons C. Sunday, Pensacola, for 3
cottages; bungalow style; cost about \$2500
each. (Lately noted.)

Fla., St. Petersburg.—H. J. Winchell has
permit to erect 2 bungalows for C. D. Ben-
bow; cost \$2500 each.

Ky., Covington.—Alfred MacDonald will
erect 2 dwellings; 2 stories and basement;
24x31 ft.; brick; cost \$2500 each.

Ky., Covington.—Chas. Hildreth, 2015 Scott
St., will erect residence; 2 stories and base-
ment; 23x34 ft.; cost \$2500.

La., New Orleans.—W. Ponds will not erect
residence. (Late report erroneous.)

Md., Hurlock.—S. O. Neal will erect res-
idence and garage; hollow tile and stucco;
E. C. May, Archt., Du Pont Bldg., Wilming-
ton, Del.

Miss., Corinth.—Wash Harrison will erect
residence on farm near Corinth.

Miss., Corinth.—Harris Hardin will erect
dwelling on Shiloh Pike, near Corinth; 7
rooms; brick.

Mo., St. Louis.—George E. Barnard will
erect residence.

Mo., Kansas City.—Troost Development Co.,
Lathrop Bldg., will erect 4 dwellings, 4945
Troost Ave. and 13, 20 and 22 E. 49th St.;
frame; shingle roof; 1 story and basement;
24x44 ft.; cost \$3500 each.

Okla., Bartlesville.—Empire Building &
Loan Assn. chartered with \$500,000 capital;
will erect 150 dwellings.

Okla., Tulsa.—Mrs. G. Hume will erect 1-
story frame dwelling; cost \$2400.

Tex., Fort Worth.—Mobley & Delaney will
erect residence; 35x52 ft.; brick; shingle
roof; oak floors; cost \$4000; cement side-
walk, \$150; plans and construction by owner.
(Lately noted.)

Tex., Fort Worth.—A. R. Carns will erect
dwelling; 1 story; frame; cost \$2375.

Tex., Fort Worth.—G. W. Apperson will
erect 1-story frame dwelling; cost \$2500.

Tex., Fort Worth.—J. S. Bond will erect
dwelling; 1 story; brick veneer; cost \$4500.

Tex., Fort Worth.—Mrs. H. O. Ledgerwood
will erect 1-story brick-veneer dwelling; cost
\$4500.

Tex., Fort Worth.—Mrs. Wm. G. Newby
will erect 1-story frame dwelling; cost \$2400.

Va., Norfolk.—B. V. Perry will erect res-
idence; 2 stories; frame; cost \$3000; con-
struction by owner.

Va., Norfolk.—John R. Riddick will erect
residence; 2 stories; frame; cost \$2500; con-
struction by owner.

W. Va., Charleston.—Mrs. W. N. Brown
will erect residence; 2 stories; frame; cost
\$4000.

W. Va., Parkersburg.—Southern Improve-
ment & Realty Co. has plans by Richard M.
Bates, Jr., Parkersburg, for 2 residences;
2½ stories and basement; 30x40 ft.; cost \$4000
to \$5000; construction by owner.

W. Va., Parkersburg.—P. W. Vincent will
erect residence; 2 stories; brick; 30x42 ft.;
slate roof; wood floors; hot-water heat;
cost \$3500; D. W. Dailey, Archt., Parkers-
burg.

GOVERNMENT AND STATE

D. C., Giesboro Point.—Housing.—Bureau
of Industrial Housing, Otto Eidlitz, Di-
rector, Washington, has plans by Milburn,
Heister & Co., Union Savings Bank Bldg.,
Washington, for housing facilities. (See
Dwellings.)

Fla., Key West.—Buildings.—Bureau of
Yards and Docks, Navy Dept., Washington,
D. C., will erect 4 buildings; cost \$77,500;
bids opened Oct. 7.

Ky., Ashland.—Dwellings.—Government, R.
R. Ralston, United States Engr., Cincinnati,
Ohio, rejected all bids to erect 2 lock tenders'
dwellings at Dam No. 29, near Ashland; 1½
stories; 28x38 ft.; hollow tile, stucco,
concrete or brick; cost \$8000; will do work with
hired labor. (Previously noted.)

Ky., Stithon.—Hospitals.—War Depart-
ment, will construct 2500-bed hospital at
Camp Knox. (See Hospitals.)

Md., Annapolis.—Storehouse.—Bureau of
Yards and Docks, Navy Dept., Washington,
will erect storehouse; cost \$20,000.

Miss., Gulfport.—Camp Addition.—Bureau
of Yards and Docks, Navy Dept., C. W.
Parks, Chief, Washington, will erect addi-
tion to training camp.

S. C., Charleston.—Barracks and Quarters.
War Department, Washington, will erect
barracks and quarters at Sullivan Island;
cost \$4000; F. B. Wheaton, Adv. Archt., and
F. M. Gunby, Adv. Engr., both at 7th and
B Sts. S. W., Washington.

Va., Bellevue.—Storehouses and Heating
Plant.—Bureau of Yards and Docks, Navy
Dept., C. W. Parks, Chief, Washington, will
erect 7 storehouses and central heating
plant; cost \$380,000.

Va., Petersburg.—Theaters.—War Depart-
ment Commission on Training Camp Activi-
ties, Washington, will erect Liberty Theater;
seating capacity 16,000. (See Theaters.)

Va., Seven Pines.—Hospital.—United States
Housing Corp., Otto Eidlitz, Prest., Wash-
ington, will erect hospital building; Chas.
Butler, Archt., 56 W. 45th St., New York.
(See Hospitals.)

HOSPITALS, SANTARIUMS, ETC.

Ark., Little Rock.—City Hospital Board
opened bids to erect hospital; Loftus Colla-
more, Little Rock, is lowest bidder at \$200,-
000 for 4 stories and basement, \$191,200 for
4th story left unfinished and at \$181,600 for 3
stories and basement; plans by John P.
Almond, 1105 Boyle Bldg., Little Rock, call
for 4 stories and basement; brick and con-
crete; 45x129 ft.; fireproof. (Lately noted.)

Ga., Atlanta.—City Commissioners will ex-
pend \$25,000 to erect dormitory for nurses at
Grady Hospital.

Ky., Stithon.—War Department, Washing-
ton, will construct 2500-bed hospital at Camp
Knox; cost about \$1,500,000.

Va., Seven Pines.—United States Housing
Corp., Otto Eidlitz, Prest., is having plans
prepared by Chas. Butler, 56 W. 45th St.,
New York, for hospital building.

HOTELS

Ala., Mobile.—Jas. K. Glennon & Co. will
not improve Point Clear Hotel until after
war. (Lately noted.)

Fla., Key West.—Florida East Coast Hotel
Co. has plans by John W. Ingle, 527 Fifth
Ave., New York, for hotel; irregular shape;

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

3 stories; concrete walls; roofing not determined; wood floors; electric lights; construction by owner under direction of Wm. J. Krome, Marathon, Fla.; date beginning construction uncertain. (Previously noted.)

Fla., St. Augustine.—Monson Hotel, Charles E. Young, Mgr., will enlarge sun parlors of hotel.

N. C., Forest City.—Dr. T. C. McBrayer will probably rebuild Hotel Mabree, noted damaged by fire at loss of \$25,000.

Okla., Newkirk.—Joe Hayes is reported to erect 40-room hotel.

S. C., Greenville.—Imperial Hotel Co. is reported to erect additional hotel building.

MISCELLANEOUS

D. C., Washington.—Restaurant.—National Cafeteria Co. has plans by Oscar G. Vogt, Home Life Bldg., Washington, for rear addition to restaurant; 3 stories; brick; cost \$20,000.

Ga., Columbus.—Cafe.—Browne Estate will convert second floor of building occupied by Joe Brown and Dozier Shoe Co. into cafe; work by day labor under supervision of Rhodes Browne and W. J. Wood of Dudley Sash, Door & Lumber Co. (See Stores.)

W. Va., Princeton.—Barn.—A. W. Reynolds has plans by A. F. Wysong, Princeton, for barn; 2 stories; 30x150 ft.; wood; composition roof; cost \$10,000; owner furnishes material; date awarding contract not set.

SCHOOLS

Ala., Albertville.—Seventh District Agricultural School, J. W. Letson, Prest., will remodel 2-story residence for dormitory for students.

Ala., Birmingham.—Jefferson County Board of Education, N. R. Baker, Supt., will erect school at Center Point and one at North Pratt; frame; cost \$7000 each; plans to erect schools at La Duce mines, Powhatan mine and at Roper. (Previously noted in part.)

Fla., Baldwin.—Duval County Board of Public Instruction, F. A. Hathaway, Supt., Jacksonville, receives bids until Oct. 12 for heating school building No. 38 according to plans and specifications of Rutledge Holmes, Jacksonville. (See Machinery Wanted—Heating.)

Fla., Coconut Grove.—Dade County Board of Public Instruction, R. E. Hall, Supt., Miami, receives bids until Oct. 1 to erect addition to public school; 30x80 ft.; 1 story and basement; concrete exterior walls; asphalt shingle roof; wood floors; cost \$8900; H. Hastings Mundy, Archt., New Tatum Bldg., Miami. (Lately noted.)

Ga., Hawkinsville.—Blue Spring Dist. will soon vote on bonds to erect school to cost about \$3000 in T. J. Woods settlement. Address Dist. School Trustees.

Ky., Bowling Green.—Western Kentucky State Normal School will erect barracks for Students' Army Training Corps.

La., New Orleans.—City has plans by E. A. Christy, New Orleans, for trade school on City Park Ave.; 400x150 ft.; 3 stories; fireproof and ordinary construction; slate and composition roof; 2 freight elevators. Address A. G. Ricks, Commr. of Public Finances, City Hall. (Previously noted.)

Md., College Park.—Maryland State College of Agriculture, A. F. Woods, Prest., is considering expending \$48,000 for improvements, to include \$25,000 for water system, \$5000 for building 40x100 ft. for dormitory and dining quarters for 500 students of army training corps; Emerson C. Harrington, Governor.

Mo., Kirksville.—Kirksville State Normal School will probably rebuild Science Hall noted damaged by fire at loss of \$100,000.

N. C., Stoneville.—Stoneville School Committee will not let contract this year to erect high school; plans by Jas. W. Hopper, Leaksville, N. C., call for structure 93x58 ft.; 2 stories; brick; slate roof; 6 classrooms and auditorium. (Previously noted.)

N. C., Wilmington.—County Board of Education will erect addition to Delgado School building; W. J. Wilkins & Co., Archts., Wilmington; bids opened Sept. 30; Chas. B. Newcomb, Chrmn. Building Committee.

Okla., Stonewall.—School Dist. No. 42, F. Reed, Secy., R. F. D. Stonewall, will erect school; 1 story and basement; 48x48 ft.; brick; composition roof; cost \$6000; bids opened Sept. 25; E. J. Peters, Archt., Shawnee, Okla.

S. C., Rock Hill.—Winthrop College, Dr. D. B. Johnson, Prest., receives bids until Oct. 21 for dormitory building and students' building; separate bids for heating; drawing and specifications at office of Edwards &

Sayward, Archts., 609 Chamber of Commerce Bldg., Atlanta, and Doctor Johnson, Rock Hill.

Tenn., Sewanee.—University of the South will probably rebuild Sewanee Inn to replace structure noted damaged by fire at loss of \$25,000.

Tex., Fort Worth.—Gertie School Dist. voted \$5000 school bonds. Address Dist. School Trustees.

Tex., Orange.—School Trustees will erect 2-room annex to West Orange high school.

W. Va., Wellsburg.—Whitaker-Glessner Co., R. J. McCullagh, Foreman, will erect school in Beach Bottom for children of munition workers.

W. Va., St. Albans.—Board of Education is having plans prepared by Higginbotham & Knapp, Charleston, W. Va., for grade and high school; 2 stories; brick; wood roof; 4 rooms at present; ultimate plans call for 8 rooms; cost \$40,000; bids opened about Oct. 1.

STORES

Ala., Nauvoo.—Coward Mercantile Co. will probably erect building to replace structure lately noted damaged by fire at loss of \$60,000.

D. C., Washington.—International Machinists Union is having plans prepared by Milburn, Heister & Co., Union Savings Bank Bldg., Washington, for store and office building; 5 stories and basement; steel frame; fireproof; slag roof; composition flooring; vacuum steam heat; electric elevator; cost \$150,000; construction begins about Dec. 1. (See Bank and Office.)

Fla., St. Petersburg.—Fred. Bordon has permit to erect storehouse and garage at Third St. and Central Ave.; 35 ft. square.

Ga., Columbus.—Browne Estate, Rhodes Browne, Administrator, will remodel front of 3-story building occupied by Joe Brown and Dozier Shoe Co.; convert second floor into cafe; work by day labor under supervision of Mr. Browne and W. J. Wood of Dudley Sash, Door & Lumber Co. (Lately noted.)

Mo., St. Louis.—Terminal Railroad Assn. will alter storehouse; cost \$2000.

Okla., Oklahoma City.—Mr. Erickson will erect 1-story brick and concrete building at 204-06-08 W. California Ave.; cost \$15,000.

Tex., Fort Worth.—H. L. Hendrick will repair frame building; cost about \$2000.

Va., Alexandria.—Mahlon H. Janey will probably rebuild store to replace structure lately noted damaged by fire at loss of \$10,000.

Va., Norfolk.—Mrs. Franklin Gill, Portsmouth, will probably rebuild store building noted damaged by fire at loss of \$20,000; building occupied by Marine Supply Co.

THEATERS

Tex., Galveston.—W. O. Williamson will expend \$5000 to remodel theater and adjoining building for motion-picture and vaudeville theater.

Va., Petersburg.—War Department Commission on Training Camp Activities, Wash-

ington, will erect Liberty Theater in replacement section at Camp Lee; seating capacity 16,000.

WAREHOUSES

Ala., Florence.—Lauderdale Bonded Warehouse Co. Incptd. with \$5000 capital by O. C. Hackworth and others.

D. C., Washington.—Clarendon and Arthur Smith, both at 1313 Rhode Island Ave. N. W., will build warehouse, 910 S St. N. W.; cost \$2643; J. A. Lankford, Archt., Washington.

D. C., Washington.—Wilson & Rogers will probably rebuild warehouse and garage at 409 Third St. N. W. to replace structure lately noted damaged by fire at loss of \$10,000.

Fla., Fort Pierce.—Fort Pierce Feed & Grain Co. will erect warehouse; 80x80 ft.; brick; combination roof; concrete floors; cost \$5900; construction begins Oct. 1.

Ga., Hazlehurst.—Martin Jarman and others are promoting erection of tobacco warehouse; 190x300 ft.; cost \$5000. (See Machinery Wanted—Building Materials.)

Ga., Newman.—H. C. Arnall Merchandise Co. will probably rebuild cotton warehouse noted damaged by fire at loss of \$4000 to \$5000; occupied by A. R. Burkett & Co.

La., New Orleans.—Capital Issues Committee authorized city to issue \$600,000 bonds to enlarge and develop cotton warehouse and grain elevator and develop shipyards on industrial canal. Martin Behrman, Mayor. (See City and County.)

Mo., St. Louis.—National Utilization Co., Percy A. Doyle, Supt., 7115 Minnesota Ave., will probably rebuild warehouse lately noted damaged by fire at loss of \$40,000.

S. C., North Augusta.—North Augusta Warehouse & Fertilizer Co. will probably rebuild warehouse to replace structure noted damaged by fire at loss of \$15,000.

Tex., Fort Worth.—W. J. Boaz will erect \$2000 warehouse.

Tex., Orange.—National Shipbuilding Co. will erect warehouse.

Va., Alexandria.—Chas. King & Sons have revised plans by W. Leon Clark, 220 S. Fairfax St., Alexandria, for warehouse; 3 and 4 stories, 126x68 ft.; cost \$30,000; bids opened about Oct. 10.

Va., Hopewell.—E. I. du Pont de Nemours & Co. will rebuild warehouses damaged by fire at loss of \$100,000. (Lately noted to probably rebuild.)

Va., Norfolk.—Cahoon & Hudgins, Arcade Bldg., will erect storage building; 2 stories; brick and concrete; cost \$5000; electric wiring contract let to Hitt & Brown, Norfolk.

W. Va., Spencer.—Farmers' Club plans to erect storage building; 1 or 2 stories; 30x150 ft.; A. C. Thomasson, Archt., Spencer.

W. Va., Mount Hope.—New River Co. plans to erect warehouse and machine shops to cost \$75,000 to \$80,000.

W. Va., Wheeling.—Liberty Transit Co. is preparing plans for river terminal building; equipped with elevators for loading and unloading boats.

BUILDING CONTRACTS AWARDED

APARTMENT-HOUSES

N. C., Charlotte.—Drs. J. P. Munroe and S. R. Thompson let contract to R. L. Goode, Charlotte, to erect apartment-house; 16 rooms; 3 stories; steam heat; cost \$10,000 to \$12,000; L. L. Hunter, Archt., Charlotte.

Tex., Beaumont.—Mrs. M. Kessinger let contract to Rutt Home Builders, Keith Bldg., Beaumont, to erect apartment-house; 2x50 ft.; frame; shingle roof; wood floors; electric lights; concrete sidewalks; cost \$4000; Winter King, Archt., Keith Bldg., Beaumont.

Va., Alexandria.—T. J. Fannon let contract to D. S. De Vaughan, 200 N. Royal St., Alexandria, to erect store and apartment building; 2 stories; 25x36 ft.; cost \$9000; W. L. Clark, Archt., 220 S. Fairfax St., Alexandria. (See Stores.)

W. Va., Charleston.—J. W. Solof let contract to Wallace Knight, Charleston, to erect apartment-house; four 5-room suites; 2 stories and basement; cost \$10,000.

Va., Norfolk.—Guy S. Jackson let contract to Bright & King, Norfolk, to erect apartment-house; 6 suites; 3 stories; let other contracts as follows: Roofing, Guarantee Roofing Co.; electric work, T. T. Osborne; painting, Chas. D. Pitts; all of Norfolk. (Lately noted.)

ASSOCIATION AND FRATERNAL

Tex., Port Arthur.—National War Work Council, Young Men's Christian Assn., 124

E. 28th St., New York, let contract to H. C. McCord, Port Arthur, to erect building in City Park; 36x72 ft.; frame; rubberoid roof; wood floors; furnace; electric lighting and wiring; cost \$2400; Edwin Owen, Archt., 515 Redell Bldg., San Antonio. (Lately noted.)

Va., Quantico.—National War Works Council, Young Women's Christian Assn., 600 Lexington Ave., New York, let contract to Arthur Tufts, Candler Annex, Atlanta, Ga., to erect hostess-house; 2 stories; 50x125 ft.; cost \$50,000; Katherine C. Budd, Archt., 527 Fifth Ave., New York.

BANK AND OFFICE

Mo., Poplar Bluff.—Poplar Bluff Trust Co. let contract to C. W. Tetwiler, Poplar Bluff, to remodel office building; cost \$12,000 to \$15,000.

Va., Richmond.—Times Dispatch Building Corp. let contract to J. T. Wilson Co., Richmond, to alter office building; cost \$40,000; Chas. M. Robinson, Archt., Richmond.

Va., Winchester.—Farmers & Merchants' National Bank will remodel building; Hoggson Brothers, Contrs., 485 Fifth Ave., New York.

CHURCHES

Mo., St. Louis.—B'nai Amoona Congregation let contract to G. S. Kronenberg, 2706 N. Grand Ave., St. Louis, to erect proposed

synagogue; 3 stories; 62x81 ft.; cost \$30,000. A. Meyer, Archt., 922 Central National Bldg., St. Louis.

Okla., Blackwell.—First Baptist Church, A. G. West, Secy., let contract to erect building; about 70x90 ft.; brick; tile and metal roof; wood floors; steam heat; electric lights; cost \$40,000; Mr. Greene, Archt., Atlanta, Ga. (Lately noted.)

CITY AND COUNTY

Mo., Kansas City.—Armory.—Jackson County Council of Defense, Julius Davidson, Prest., let contract to Gould & St. John, 220 Walnut St., Kansas City, to remodel building at 39th and Main Sts. for armory for National Guard of Missouri and home guards; 1 story; install heating plant; provision for 16 company-rooms, storage space for ordnance and quartermaster equipment; cost \$15,000. (Lately noted.)

DWELLINGS

Fla., Coconut Grove.—John B. Orr, Miami, Fla., general contractor to erect residence for John Bindley, let following sub-contracts: Plumbing, Alex. Orr; electrical work, E. A. Robinson; floor tile, Miami Tile Co.; roofing, M. J. Bohnert; all of Miami; screens, Watson & Co., Pittsburgh, Pa.; plans by Kiehnell & Elliott, 245 Fourth Ave., Pittsburgh, call for fireproof construction; tile roof; concrete floor construction; cost about \$75,000. (Previously noted.)

Fla., Jacksonville.—Chas. A. Brown, Jr., has plans by and let contract to Henry Taylor & Son, 2825 Oak St., Jacksonville, to erect residence; 30x42½ ft.; stucco on frame; asphalt shingle roof; pine and hardwood floors; hot-air heat; city lighting; cost \$4000. (Lately noted.)

Fla., Oldsmar.—Oldsmar Investment Co. has contract to erect a number of homes on farms near Oldsmar.

Md., Aberdeen.—Bureau of Industrial Housing, Dept. of Labor, Washington, has plans by Sill, Buckler & Fenhagen, 11 E. Pleasant St., Baltimore, Md., and let contract to Sutton & Carson, Ocean City, N. J., for seventy 6-room frame and stucco cottages; slate roofs; hot-air heat; cost \$3200 each. (See Government and State.)

Mo., Joplin.—Doctor Selway let contract to Tozier & Richardson, Joplin, to erect residence and garage; 42x46 ft.; 2 stories and basement; concrete and frame; vulcanite shingle roof; oak floors; hot-water heat; electric lights; cost \$5000; A. J. Richardson, Archt., R. F. D. No. 5, Joplin, may be addressed. (Lately noted.)

Mo., St. Louis.—F. E. Champ let contract to John Szeponski, 4701 Sacramento Ave., St. Louis, to erect residence; 2½ stories; 52x35 ft.; cost \$6000; Klipstein & Rathman, Archts., Chemical Bldg., St. Louis. (Lately noted.)

N. C., Charlotte.—J. S. McWhinter let contract to E. R. Carter to erect \$2500 residence; E. L. Bonfoey, Archt., Charlotte.

Tex., Beaumont.—Felix Canatella, Plan and Magnolia Sts., let contract to Davis & Posey, Beaumont, to erect residence; 22½ ft.; 5 rooms and sleeping porch; frame; tile roof; pine floors; cost \$5200; Babin & Beck, Archts., Beaumont. (Lately noted.)

Tex., Beaumont.—E. L. Jackson, care of Lone Star Ship Building Co., let contract to Rutt Home Builders, Keith Bldg., Beaumont, to erect residence; 27x36 ft.; wood; shingle roof; wood floors; fues; electric lights; concrete sidewalks; cost \$2175; Winter King, Archt., Keith Bldg., Beaumont.

Va., Norfolk.—M. Fachine let contract to Norfolk & Portsmouth Finance Corp., Lav Bldg., to erect 2-story \$7500 residence; to Wilson & Company, 710 Boush St., Norfolk, to erect 2½-story \$5000 residence in La Fayette Residence Park, and to C. C. Barkley, Pembroke Ave., for masonry work, and Wilson & Company, 710 Boush St., for heating and plumbing, for 2½-story \$5000 residence in La Fayette Residence Park; all contractors of Norfolk; Philip B. Moser, Archt., Law Bldg., Norfolk.

Va., Norfolk.—H. S. Owing let contract to C. V. Carner, 606 W. 28th St., Norfolk, to erect residence; 2 stories; cost \$6000.

Va., Norfolk.—Wm. A. Hahn let contract to Norfolk & Portsmouth Building & Finance Corp., Norfolk, to erect 3 residences in Chesterfield Heights; 2 stories; cost \$4500 each; heating and plumbing contract let to Wilson & Company, 710 Boush St., Norfolk.

W. Va., Bluefield.—N. A. Combs let contract to J. M. Wiggins, Bluefield, to erect 6-room dwelling.

W. Va., Parkersburg.—Dabney Caldwell let contract to Southern Realty & Improvement

Co., Parkersburg, to erect residence; 2 stories and basement; 42x48 ft.; cost \$30,000; R. M. Bates, Jr., Archt., Parkersburg.

GOVERNMENT AND STATE

D. C., Washington—Forty-four Buildings.—Bureau of Yards and Docks, Navy Dept., Washington, let contract to Deverell, Spencer & Co., Garrett Bldg., Baltimore, to erect 44 buildings.

Ga., Columbus—Training School.—War Department, Washington, will establish camp for infantry training school near Columbus; accommodate 31,000; let contract to W. Z. Williams Co., Macon, for preliminary work, including remodeling farmhouses for officers, etc.; Major J. Paul Jones, Waverly Hotel, Columbus, in charge of present work; Col. H. E. Eames, same address, in general charge of operations; Lockwood, Green & Co., Engrs., Atlanta and Boston. (Lately noted.)

La., New Orleans—Shellhouse.—Bureau of Yards and Docks, Navy Dept., Washington, let contract to John Riess, Hoerum Bldg., New Orleans, to erect shellhouse; cost \$40,000. (Lately noted.)

Md., Aberdeen—Dwellings.—Bureau of Industrial Housing, Dept. of Labor, Washington, has plans by Sill, Buckler & Fenhagen, 11 E. Pleasant St., Baltimore, and let contract to Sutton & Carson, Ocean City, N. J., for housing facilities; seventy 6-room detached cottages; frame and stucco; slate roofs; hot-air heat; cost \$3200 each; Norton, Bird & Whitman, Engrs., Munsey Bldg., Baltimore; Stephen Child, Town Planner, Washington. (Previously noted.)

N. C., Raleigh—Camp.—War Department, Washington, reported to have let contract to J. L. Crouse, Greensboro, N. C., to build army tank corps camp; provision for 6000 to 10,000 men; cost \$2,500,000 to \$3,000,000. (Lately noted.)

S. C., Greenville—Barracks.—War Department, Washington, let contract to Galloway Building Co., Greenville, to erect one hundred and forty 2-story permanent wooden barracks, 60 kitchens, 60 bathhouses, officers' quarters, etc., for 156th depot brigade at Camp Sevier; cost \$2,225,000; F. B. Wheaton, Adv. Archt., and F. M. Gunby, Adv. Engr., both at 7th and B Sts., S. W., Washington.

S. C., Paris Island—Prisoners' Camp.—Bureau of Yards and Docks, Navy Dept., C. W. Parks, Chief, Washington, let contract at \$31,321 to A. Bentley & Sons Co., Atlantic Bank Bldg., Jacksonville, Fla., to erect extension to naval prisoners' camp. (Lately noted.)

Va., Norfolk—Storage Shed.—Bureau of Yards and Docks, Navy Dept., C. W. Parks, Chief, Washington, D. C., let contract at \$32,766 to G. F. Wyne, 82 Home Life Bldg., Washington, to construct steel storage shed at navy-yard. (See Warehouses.)

Va., Yorktown—Storage Plant.—Bureau of Yards and Docks, Navy Dept., C. W. Parks, Chief, Washington, let contract to F. W. Mark Construction St., 1701 Finance Bldg., Philadelphia, to construct concrete oil reservoirs and fuel oil storage-plant equipment and buildings; 12 buildings; 163x163x23 ft.; reinforced concrete; steam heat; electric lights; cost \$800,000. Address contractor.

HOSPITALS, SANITARIUMS, ETC.

Fla., Key West.—Bureau of Yards and Docks, Navy Dept., Washington, let contract at \$9982 to Wm. Grohne Co., Joliet, Ill., for repairs and alterations at marine hospital. (Previously noted.)

MISCELLANEOUS

Ga., Savannah—Barn.—Savannah Electric Co., let contract to Arley Construction Co., Savannah, to repair barn.

Md., Camp Holabird—Auditorium.—Camp Welfare League let contract to Price Construction Co., Maryland Trust Bldg., Baltimore, to erect auditorium; 1 story; 250x500 ft.; cost \$30,000; roofing contract let to Chesapeake Roofing & Pipe Covering Co., 117 Chesapeake St., Baltimore.

Md., Highlandtown—Dining Hall.—Crown Cork & Seal Co., John M. Hood, Prest., let contract to West Construction Co., 907-10 American Bldg., Baltimore, to erect mess hall for cartridge employees on 11th St.; 1 story; 60x200 ft.; seating capacity 1000; Otto G. Simonson, Archt., Maryland Casualty Tower, Baltimore.

Tenn., Limestone—Barn.—S. J. Pence (D. R. Pence, Mgr.) has plans by and let contract to J. W. Keys, Jonesboro, Tenn., to erect barn to replace structure lately noted damaged by fire; 50x70 ft.; frame; slate surface;

paper roof; dirt floor; estimated cost \$2500. Address D. B. Pence. (See Machinery Wanted—Barn Equipment; Door Hangers.)

RAILWAY STATIONS, SHEDS, ETC.

Ky., Stithton.—Illinois Central R. R., A. S. Baldwin, Chief Engr., 135 E. 11th Place, Chicago, let contract on percentage basis to Jos. E. Nelson & Son, 118 N. La Salle St., Chicago, to erect passenger station, freight-house and express building; 1 story; 40x200 ft.; cost \$85,000; D. F. McLaughlin, Archt., care of Illinois Central R. R.

Md., Baltimore.—United Railways & Electric Co., Continental Bldg., let contract to Fraine Brothers & Hagley, 18 Clay St., Baltimore, to erect waiting station at Columbia Ave. and Putnam St.; frame and terra cotta; cost \$10,000.

Mo., Sedalia.—Missouri Pacific R. R. Co., E. A. Hadley, Chief Engr., St. Louis, let contract to Jasper C. Duncan, Century National Bank Bldg., St. Louis, to erect dry lumber shed; 40x500 ft.; frame; composition roof; cost \$500; T. R. Carpenter, Engr., and E. M. Tucker, Archt., both at Railway Exchange Bldg., St. Louis. (Lately noted.)

Okl., Tulsa.—Atchison, Topeka & Santa Fe Ry. (Tulsa & Santa Fe Ry., subsidiary), H. W. Wagner, Chief Engr., Topeka, Kan., is reported to have let contract to erect passenger depot, freight station and terminal yards at First and Second Sts., from Elgin to Greenwood Ave.; plans call for passenger depot 147½x90 ft.; 2 stories; reinforced concrete with front of Navajo brick; terra-cotta trim; second story for offices for freight and passenger forces; lobby leading from Elgin Ave. to main sheds; ticket office to have 6 windows; freight station, 2 stories; 350x32 ft.; fireproof; frame and brick; concrete foundation and floor; roof provided with skylights; terminal yards to have trackage of about 10 mi.; install electrical interlocking system; construct transfer platform, covered sheds, etc.; total expenditure \$2,000,000; contracts said to call for completion of freight station by Jan. 1, 1919, and passenger depot about April 1, 1919; C. E. Briggs, Engr. in charge of construction. (Previously noted.)

SCHOOLS

Ark., Searcy.—T. T. Reddick, Fort Smith, Ark., general contractor to erect dormitory for Galloway College, let following sub-contracts: Plumbing and heating, Bruce Brothers; electric work, H. A. Veasey; painting, L. C. Shrien; plastering, M. C. Smith; brick, Burke Brick & Tile Co.; all of Fort Smith; millwork, Chas. T. Ables & Co.; roofing, Stuart Roofing Co.; metal work, Haley & Hornbrook; lime and cement, Fischer Lime & Cement Co.; all of Little Rock; reinforcing steel, Truscon Steel Co., Youngstown, Ohio; cut stone, Bedford Steam Stone Works, Bedford, Ind.; plans by Mann & Stern, Little Rock, call for 3-story structure; 200x100 ft.; fireproof; tar and gravel roof; reinforced concrete floors; vapor heat; electric lights; handpower baggage elevator; dumb waiter; cost \$100,000. (Previously noted.)

Ark., Texarkana.—Special School Dist. No. 7 let contract to Lee Quillen, Texarkana, to erect school building; ordinary construction; asphalt shingle roof; wood floors; steam heat; Witt, Seibert & Co., Archts., Texarkana. (Lately noted.)

Ga., Columbus.—War Department, Washington, will establish camp for infantry-training school near Columbus; accommodate 31,000; let contract to W. Z. Williams Co., Macon, for preliminary work, including remodeling farmhouses for officers, etc.; Major J. Paul Jones, Waverly Hotel, Columbus, in charge of present work; Col. H. E. Eames, same address, in general charge of operations; Lockwood, Green & Co., Engrs., Atlanta and Boston. (See Government and State.)

Ky., Campbellsville.—Board of Education let contract to King & Denny, Campbellsville, to construct foundation for high school; plans for school call for 2 stories and basement; 72x132 ft.; brick, stone and joist construction; composition roof; wood floors; cost \$40,000; C. C. and E. A. Weber, Archts., Miller Bldg., Cincinnati. (Previously noted.)

Okl., Optima.—Board of Education, Chas. Polf, Secy., let contract to Eugene Staedelin, Optima, to erect school; 1 story and basement; 44x60 ft.; brick and frame; shingle roof; pine floors; steam heat; cost \$12,000; Mann & Gerow, Archts., Rorobaugh-Wiley Bldg., Hutchinson, Kans. (Lately noted.)

Okl., Stillwater.—Reinhart & Donovan, 721 Insurance Bldg., Oklahoma City, general con-

tractors to erect armory-gymnasium building and science building at Oklahoma Agricultural & Mechanical College, let following sub-contracts: Cut stone, Ingalls Stone Co., Bedford, Ind.; electric wiring, Oklahoma Electric Supply Co.; painting, S. E. Hanson; structural steel for science building, J. B. Klein Iron & Foundry Co.; common brick, face brick and interlocking tile, Lumberman's Supply Co.; plastering, A. E. Maidt; sheet metal and roofing, Hugh L. Turner; wire guards, Oklahoma Wire and Iron Works; Portland cement, Oklahoma Portland Cement Co.; all of Oklahoma City; millwork, Ulrich Planing Mill Co., Independence, Kan.; ornamental iron for armory building, St. Joseph Structural Steel Co., St. Joseph, Mo.; structural steel for armory building, C. M. Pritchard Co., Tulsa, Okla.; plans by F. W. Redlich, Stillwater, call for fireproof construction; concrete floors; electric lights; cost \$200,000. (Previously noted.)

S. C., Columbia.—State let contract to C. M. Lide, Columbia, to erect industrial school for girls; 2 cottages; 30x120 ft.; frame and brick veneer; brick foundation; slate roof; wood floors; steam heat; individual electric lighting system; Ludlow & Peabody, Archts., 101 Park Ave., New York; J. Carroll Johnson, Associate Archt., Columbia. (Previously noted.)

Tex., Caddo.—Caddo Mound Dist. let contract to J. H. Nevill, Godley, Tex., to erect \$5000 school building.

STORES

Mo., Kansas City.—E. F. Swinney let contract to F. M. Jackson, 6109 Jackson Ave., Kansas City, to remodel business building; 4 stories and basement; W. O. Brostrom, Archt., Reliance Bldg., Kansas City.

Mo., St. Louis.—Brandt Estate let contract to Daniel Evans Construction Co., Odd Fellows Bldg., St. Louis, to rebuild store building damaged by fire; J. M. Dunham, Archt., Chemical Bldg., St. Louis.

Va., Alexandria.—Swan Brothers let contract to J. D. Knight, Alexandria, to remodel store building; 3 stories; let contract

for electric wiring to K. White, Alexandria; Speiden & Speiden, Archts., 1603 New York Ave. N. W., Washington, D. C. (Lately noted.)

Va., Alexandria.—T. J. Fannon let contract to D. S. De Vaughan, 300 N. Royal St., Alexandria, to erect addition to store and apartment building at Fayette and King Sts.; 2 stories; 25x36 ft.; cost \$9000; let electric wiring contract to Kent White, Alexandria; W. L. Clark, Archt., 239 S. Fairfax St., Alexandria.

Va., Newport News.—F. C. Lenz let contract to J. R. Osbourne, 1014 25th St., Newport News, to erect store building; cost \$10,000; Herbert W. Simpson, Archt., Board of Trade Bldg., Norfolk.

Va., Richmond.—Mrs. G. F. Peter let contract to Moore & Harry, 16 S. 8th St., Richmond, to remodel store building; low-pressure steam heat; electric lights; electric passenger elevator; cost \$9165. (Lately noted.)

WAREHOUSES

Md., Baltimore.—Isaac A. Sheppard & Co. let contract to Henry S. Franklin, 5 S. Linwood Ave., Baltimore, to erect two 1-story brick buildings at 512 S. Chester St.; 27x30 ft. and 36x45 ft., respectively; Carey roofs; concrete floors; cost \$3500; C. S. Austin, Archt., 2912 Guilford Ave., Baltimore.

Va., Norfolk.—Bureau of Yards and Docks, Navy Dept., C. W. Parks, Chief, Washington, let contract at \$382,766 to G. F. Wyne, 82 Home Life Bldg., Washington, to construct steel storage shed at navy-yard. (Previously noted.)

Va., Richmond.—Albemarle Paper Co. let contract to O. C. Peers, Ginter Park, Richmond, to erect storage warehouse; 2 stories; cost \$6500. (Lately noted.)

Va., Yorktown.—Bureau of Yards and Docks, Navy Dept., C. W. Parks, Chief, Washington, let contract at \$571,840 to F. W. Mark Construction Co., 1701 Finance Bldg., Philadelphia, to construct concrete oil reservoirs and fuel oil storage plant and equipment; 12 buildings; steam heat; electric lights; 163x163x223 ft.; cost \$800,000. Address contractor.

MACHINERY, PROPOSALS AND SUPPLIES WANTED

"WANTS"

Alfalfa Mills.—V. A. Smith, Box 1106, Mobile, Ala.—Data and prices on small mill to grind alfalfa meal for farm use.

Automobile Parts.—Eure Motor Co., Grimsley Bldg., Ayden, N. C.—Prices on automobile accessories of all kinds.

Bakery Equipment.—Wyoming Baking Co., W. U. Tate, V. P., Mullens, W. Va.—Prices on ovens, mixers, molders, racks, etc., for bakery, daily capacity 20 to 25 bbls. flour.

Barn Equipment.—D. J. Pence, Limestone, Tenn.—Prices on hay carrier and fork, manure carrier, metal horse troughs and racks and door hangers for \$2500 barn.

Boilers.—Office Mississippi River Comsn., 1st and 2d Dists., Custom-house, Memphis, Tenn.—Bids until Oct. 24 to furnish boilers for hydraulic grader No. 1820; further information on application.

Boiler (Vertical) and Engine.—Jos. E. Thropp, Everett, Pa.—Vertical hoisting engine boiler; heavy construction, good for 125 lbs. pressure in Pennsylvania; diam. 32 to 54 in.; also 10 or 12 H. P. stationary steam engine; state full details and price.

Bridge Construction.—See Road and Bridge Construction.

Building Materials.—Martin Jarman, Hazlehurst, Ga.—Building materials for erection of \$5000 tobacco warehouse.

Bulldozer.—See Crane.

Cans (Tin).—I. Brown, 316 18th St., Miami Fla.—Prices per 100 on 1-qt. tin cans, round or square.

Carbon Plant.—American Indian Oil & Gas Co., Poteau, Okla.—Prices on complete second-hand plant and equipment for manufacturing carbon from natural gas.

Conveying Machinery (Mail).—Treasury Department, Supervising Archt.'s Office, Washington.—Open bids Oct. 24 for mail-conveying machinery in United States courthouse and postoffice, Pittsburgh, Pa.; copies of specifications and drawings obtainable this office.

Copper Cable and Wire, Electrical Material, etc.—Panama Canal, A. L. Flint, Gen-

eral Purchasing Officer, Washington.—Bids until Oct. 16 to furnish copper cable and wire, electrical material, ceiling fans, repair parts for cars, window glass, galvanized steel chain, asbestos, flax and rubber packing, rubber tires, silver knives and spoons, scrub brushes, crayons, buckskin gloves, marine, rubber hose, sand paper, emery cloth, cheesecloth, metal polish, excelsior, ferro-manganese, ferro-silicon, lumber, and copper screening; blanks, etc. (circular 1231), obtainable Panama Canal office or offices Asst. Purchasing Agents, 24 State St., New York; 606 Common St., New Orleans, and Fort Mason, San Francisco; also from United States Engr. offices in principal cities.

Cotton-scrim Manufacturers.—Emmet Miller, 2d floor Overholser Theater, 215½ W. Grand Ave., Oklahoma City, Okla.—Addresses of cotton mills that can manufacture scrim, fine laces or "netting"; will furnish sample of scrim desired.

Crane (Electric), etc.—Nashville Bridge Co., Nashville, Tenn.—Prices on following new or used equipment: 60-ft. 10-ton electric crane; punch, 36-in. or 42-in. throat, 1-in. hole in 1-in. material; bulldozer.

Crushers.—National Products Co., East Liverpool, Ohio.—Prices on 3 No. 5 or similar Champion crushers with manganese jaws.

Dehydrating Plant (Fruit and Vegetable).—Chas. D. McKinney, care of Green, Tilson McKinney, 1701 Hurt Bldg., Atlanta, Ga.—Data on dehydration plant for fruits and vegetables, and prices on machinery.

Distributors (Oil).—Southern Paving Construction Co., Volunteer Bldg., Chattanooga, Tenn.—To rent or buy Kinney Mfg. Co. oil distributor; second-hand; first-class operating condition.

Door Hangers.—See Barn Equipment, D. J. Pence.

Electric-light Equipment.—City of Belhaven, N. C., N. B. Mariner, Mayor.—Bids until Oct. 8 to furnish and erect 100 H. P. crude oil engine and appurtenances; 90 K.

(Continued on page 110.)

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

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\$4,000,000



Total Resources
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FINANCIAL NEWS

The MANUFACTURERS RECORD invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

NEW FINANCIAL CORPORATIONS

Ark., Little Rock.—Mutual Building & Savings Association Incptd., capital \$2,500,000. W. E. Harrington, Pres.; R. C. Butler and E. Metzner, V.-Ps.; T. R. Mills, Secy.-Treas.

La., Covington.—Commercial Bank & Trust Co. is organized with E. J. Domergue, Pres.; W. E. Morris, New Orleans, V.-P.

N. C., Winston-Salem.—Twin-City Real Estate & Insurance Agency Co., authorized capital \$15,000, incptd. by J. H. Whicker, John L. Wimbish and W. S. Alexander.

Okla., Bartlesville.—Empire Building & Loan Assn. is chartered; capital \$500,000.

Okla., Coalgate.—First National Bank has absorbed the Coalgate State Bank, capital \$100,000; surplus \$20,000. Tom Mitchell, Pres.; J. G. Loring, Active V.-P.; D. W. W. Pomeroy, V.-P.; R. R. Carson, Cashier.

Okla., Duncan.—Security State Bank, capital \$25,000, incptd. by M. C. Sutton and C. L. Bark of Oklahoma City, and E. E. Clark of Duncan.

Okla., Idabel.—American National Bank, to succeed the Idabel State Bank, chartered; capital \$30,000.

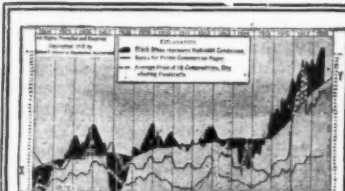
Okla., Tulsa.—Atlas Life Insurance Co., capital \$100,000, which is to be increased to \$500,000, will soon begin business with H. O. McClure, Pres.; Dr. J. H. Florence, Tulsa, V.-P. Officers will be at 311 Palace Bldg.

S. C., Buffalo.—Bank of Buffalo is to be chartered; capital \$10,000. H. B. Jennings, Pres.; Union, S. C.; J. H. Riley, V.-P., Buffalo; S. R. Perrin, Cash., Union. Business is to begin about Oct. 15.

S. C., Navy-Yard.—Charleston Trust Co., capital \$25,000, has begun business with E. H. Pringle, Pres.; E. H. Pringle, Jr., and G. W. Walker, V.-Ps.; A. R. La Cost, Secy., and R. S. Small, Treas. (Lately noted.)

Va., Portsmouth.—American National Bank, capital \$250,000, will begin business about Feb. 1. H. A. V. Parker, Pres.; C. C. Hall and Isaac Fass, V.-P.; George Bosman, General Counsel.

W. Va., Princeton.—Princeton National Bank, to succeed the Princeton Banking



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Co., has made application for charter
tal \$100,000.

NEW SECURITIES

Ala., Tuscumbia.—(Sewer).—City is to have issued \$240,000 of bonds. Sherrod, Mayor.

Ark., Blytheville.—(Road).—City is to have issued \$50,000 of bonds. Judge James Gould, Pine Bluff, Mayor.

Fla., Moore Haven.—(Water, Sewer).—Town Trustees, C. C. Klutts, Clerk, Council, asks bids until noon Oct. 15, 1919, for \$30,000 of 6 per cent. 20-year \$500 denomination bonds. Further particulars found in the Proposals Department.

Ga., Hawkinsville.—(School).—Blairstown Dist., Pulaski County, will vote on a recent election has been declared Address County Commrs.

La., New Orleans.—(Public Improvements).—City is authorized by the Capital Improvement Committee at Washington to issue \$5 per cent. bonds to enlarge and develop public cotton warehouse and grain elevator and develop shipyards on the Industrial Canal. Address The Mayor.

Md., Havre de Grace.—(Street).—City is reported to have voted \$5000 of bonds. Address The Mayor.

Miss., Charleston.—(Bridge).—Tallapoosa County Supvs., D. S. Henderson, Clerk, bids Oct. 7 for \$35,000 of 6 per cent. bonds.

Miss., Jackson.—(Refunding Sewerage).—City will vote Nov. 5 on \$80,000 of bonds, and if authorized, will issue them April 1, 1919. On Feb. 1, 1919, city will also vote \$20,000 of bonds to refund a like amount bridge and school bonds maturing on date. F. M. Trussell, City Clerk.

Miss., Meridian.—(School).—Lauderdale County Commrs., W. R. Pistole, Clerk, offers for sale Oct. 8, \$5000 of 6 per cent. bonds Dry Creek School Dist.; April 1, 1918; maturity 1923 to 1932, inclusive.

Miss., Yazoo City.—(Improvements).—E. G. Olden, City Clerk, asks bids Oct. 15, 1918, for \$23,000 of not exceeding 6 per cent. bonds dated Oct. 15, 1918, and maturing 1919 inclusive.

Mo., Fayette.—(Water).—City voted to issue bonds. Address The Mayor.

Mo., Parkville.—(Road, Bridge).—Park County Commrs. have sold to the Bank, Parkville, \$20,000 of 6 per cent. bonds.

N. C., Charlotte.—(Road).—Charlotte Trust Co., Charlotte, three \$30,000 of 6 per cent. 1-3-year notes.

N. C., Charlotte.—(School).—City sold to Edmund Brothers of Charlotte \$15,022.50 of \$5000 of 6 per cent. bonds. J. Wilson, City Clerk.

N. C., Charlotte.—(School).—Mecklenburg County Board of Education, W. E. Pringle, Clerk, sold Sept. 23 at par and interest Sidney Spitzer & Co., Toledo, \$6000 of 6 per cent. 20-year \$500 or \$1000 denomination bonds Special School Dist. 5, White Creek Township.

N. C., Morganton.—(Road).—Burke County Commrs., J. R. Howard, Clerk, ask bids until noon Oct. 14 for \$5000 of 6 per cent. 20-year bonds Silver Creek Township.

N. C., Warsaw.—(Light, Water).—City of F. Pierce, Town Clerk, offers for sale until noon Oct. 7 \$12,000 of light and water bonds, \$500 denomination bonds, dated Oct. 1918; maturity 1928 to 1935, inclusive.

Okla., Mangum.—(Fire Truck).—City is at par to E. S. H. Arnold & Co., \$10,000

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10-year \$1000 denomination bonds. G. F. Wooder, Mayor. (Lately noted.)

Oklahoma, McAlester—(Water).—City Clerk, J. M. Gannaway, advises the Manufacturers Record that the bond election ordered for Sept. 17 is postponed to Oct. 3 and the \$738,000 authorized for water and sewers reduced to \$400,000 for water only. Bonds were sold last August to Spitzer, Rorick & Co., Toledo, subject to the election.

Oklahoma, Tulsa—(Water).—City is said to have failed to secure approval from the Capital Issues Committee authority to issue \$75,000 of bonds. C. H. Hubbard is Mayor.

S. C. Gaffney—(Road).—Cherokee County Commrs., W. C. Harrick, Chrmn., on Sept. 24 sold at par and \$1311 premium to Harris, Forbes & Co., New York, \$100,000 of the authorized issue of \$225,000 of 5 1/2 per cent. 20-year \$1000 denomination bonds.

S. C., Spartanburg—(Highway).—Spartanburg County Highway Commission on Sept. 25 sold at par \$302,000 of 4 1/2 per cent. bonds to the Spartanburg Clearing House Assn., who in turn sold them to R. M. Grant & Co., New York.

Tenn., Harriman—(Funding).—City sold Sept. 20 to Seasongood & Mayer, Cincinnati, at \$13,070 and interest, \$13,000 of 6 per cent. \$1000 denomination bonds.

Texas, Bay City—(School).—Matagorda County has had approved by Atty-Gen. the following 5 per cent. 10-20-year bonds: Dist. 3, \$2500; Dist. 14, \$2500. Address County Commrs.

Texas, Canadian—(Road, Bridge).—Hemphill County voted \$6000 bonds. Address County Commrs.

Texas, Canton—(Road).—Van Zandt County has sold at par and interest \$300,000 of bonds to Dan La Rue. Address County Commrs.

Texas, Clarksville—(School).—Madison County has had approved by Atty-Gen. \$600 of 5 per cent. 10-20-year bonds Common School Dist. 57. Address County Commrs.

Texas, Crockett—(School).—Houston County has had approved by Atty-Gen. the following 5 per cent. bonds: \$1300 Dist. 2, 5-20s.; \$1100 Dist. 51, 5-20s.; Montague County Common School Dist. Nos. 45, 104, 20 and 74, all 20-year 5 per cents, \$1500, \$1200, \$2500 and \$2000, respectively. Address County Commrs.

Texas, Dallas—(Levee).—Bois D'Arc Island Levee Dist., Dallas County, Charles E. Grass, Auditor, last August voted \$414,700 of 6 per cent. bonds. They are now being prepared, and will be placed before Atty-Gen. for approval, and then with the Federal Reserve Bank with permission to issue them. If granted they will be offered at private sale by Quentin D. Corley, County Judge.

Texas, Galveston—(Refunding).—City has had approved by Atty-Gen. \$1000 of 5 per cent. bonds. Address The Mayor.

Texas, Graham—(School).—Young and

Stephens County Line Common School Dist. No. 49 has had approved by Atty-Gen. \$2500 of 5 per cent. 10-20-year bonds. Address Board of Trustees.

Texas, La Grange—(Road).—Fayette County Commrs., George Willrich, Judge, asks bids until 9 A. M. Oct. 14 for 50 or the entire series of 200 of 5 per cent. 10-30-year \$500 denomination bonds Road Dist. No. 1.

Texas, Madisonville—(School).—Madison County has had approved by Atty-Gen. \$2100 of 5 per cent. 5-20-year bonds Common School Dist. No. 9. Address County Commrs.

Texas, McKinney—(Road).—Road Dist. No. 14, Collin County, votes Sept. 28 on \$75,000 of bonds. R. L. Moulden, County Judge.

Texas, Seymour—(Road).—Baylor County has awarded to a syndicate composed of Powell, Garard & Co., Chicago; Kauffman-Smith-Emert Investment Co., St. Louis, and C. W. McNear & Co., Chicago, \$300,000 of 5 per cent. bonds.

Texas, Sulphur Springs—(School).—Hopkins County Common School Dist. No. 96 has had approved by Atty-Gen. \$600 of 5 per cent. 10-20-year bonds. Address County Commrs.

Texas, Weatherford—(Road).—Parker County, E. A. Swafford, County Judge, votes Oct. 5 on \$400,000 of bonds. (Lately noted.)

Texas, Wheeler—(Road).—Wheeler County is still offering for sale \$15,000 of 5 per cent. 10-20-year \$1000 denomination bonds Road Dist. No. 2. Address L. D. Miller.

Va., Bristol—(Street).—City rejected all bids received Sept. 23 for \$50,000 of 6 per cent. 10-year street bonds, owing to the fact that the Government requested that no bonds be put on the market at this time.

W. Va., Clarksburg—(Bridge, Water, etc.).—City defeated \$325,000 of bonds proposed for municipal improvements. Joe N. Craddock, Mayor.

W. Va., Elkins—(Road).—Randolph County Commrs. have sold to the State Compensation Commission \$15,000 of the \$92,000 bonds voted in July. Balance will not be offered at present.

FINANCIAL NOTES

First National Bank of Colgate, Okla., increased capital from \$50,000 to \$100,000.

First National Bank, Quitman, Ga., increased capital from \$100,000 to \$150,000.

First National Bank, Bristol, Tenn., increased capital from \$100,000 to \$150,000.

The American Bankers' Association, which held its annual convention at Chicago last week, elected officers for the ensuing year as follows: Pres., Robert F. Maddox of Atlanta, Ga.; 1st V.-P., Richard S. Hawes of St. Louis, Mo.; 2d V.-P., John S. Drum of San Francisco, Cal.; Treas., James D. Hoge of Seattle, Wash.; Gen. Secy., F. E. Farnsworth of New York City; Gen. Counsel, Thomas B. Paton, also of New York.

INDUSTRIAL NEWS OF INTEREST

Stationary Engineers' Outing.

As usual, the Lunkenheimer Company of Cincinnati royally entertained the delegates and visitors to the national convention of the National Academy of Stationary Engineers, held in Cincinnati recently. The company obtained permission to use the Zoological Gardens for one afternoon and evening for their outing, and the large attendance indicated that everyone visiting the convention was present. Amusements of all kinds were arranged, including vaudeville, with ice skating upon an outdoor artificial ice rink by professionals from Chicago. The entertainment included an excellent dinner, attended by over 1500 people. It was the consensus of opinion of the delegates and their friends that this outing made the 1918 convention one of the most enjoyable and interesting ever held.

TRADE LITERATURE

To Maintain Roads on Private Estates.

A handsomely illustrated and exceedingly interesting booklet concerning the use of Tarvia for the construction, reconstruction and maintenance of roadways on private estates has just been issued by the Barrett Company, manufacturer of that well-known product. It tells of how roadways in perfect harmony with rural environment but thoroughly substantial may be built and the numerous pictures presented show the results already obtained in different parts of the country. All of the views are attractive,

but one on Riverside Drive, New York, is of particular beauty.

Austin Standard Buildings.

Some years ago the Austin Company, industrial engineers and builders, Cleveland, Ohio, conceived the idea of standardizing manufacturing buildings. This unique step was followed by the practice of carrying in stock materials for such structures and it is observed that the results, especially at this time, when industrial expansion is so generally pressing, have been phenomenal. The company has just issued a large book describing its methods and giving many illustrations of the remarkable results accomplished. It consists of 64 pages, every one of which is interesting. Beginning with a definition of "the Austin Method" its chapters cover 10 standard building units, railway standard units, combinations of standards, specifications, industrial building service, equipment service and export service. There are more than 50 clear, handsome illustrations of interiors and exteriors reproduced from photographs, besides detailed drawings of cross-sections, floor plans, front and side elevations, etc. Different architectural details are likewise displayed. The Nela Park group of buildings at Cleveland is particularly attractive.

Book Review.

Making Advertising Pay. By Harold F. Eldridge, Columbia, S. C. Published by the author. Second edition. This book of 231 pages is an exhaustive

consideration of advertising and its manifold advantages. There are 11 chapters, each devoted to a discussion of some phase of advertising, and the good counsel embodied therein, together with narrations of the results of experience, are most valuable to everyone in business, whether he be an advertising solicitor, a merchant or a manufacturer desiring to present goods in such manner as to win customers. The fundamental importance of truth and accuracy is emphasized in a most attractive and convincing manner, and the evils of deceptive advertising of any kinds are made equally clear. Examples of advertising done by some of the world's greatest merchants and manufacturers are presented so as to be of the most service to students of methods in the art, and there are illustrations to supplement the text. Mr. Eldridge truthfully says in his introductory remarks that advertising when properly directed "becomes a force which benefits both the advertiser and the consumer of advertised goods, justifying its economic existence by the service it renders both." Again he says: "This book, then, is an attempt to place before merchants, business men and inexperienced and prospective advertisers those basic principles upon which successful advertising must be built." The contents of the volume are ample evidence that he has succeeded in his effort; they are complete and luminous.

LOANS MADE TO STATES, CITIES, COUNTIES, ETC.

Also Entire Issues of Bonds of Successful Industrials Purchased

Largest Capital and Surplus of Any Financial Institution in Maryland or Any Southern State.

Established 1864 Resources \$21,000,000

MERCANTILE TRUST and DEPOSIT CO.

OF BALTIMORE

A. H. S. POST, President F. G. BOYCE, Jr., Vice-President

HASKINS & SELLS

CERTIFIED PUBLIC ACCOUNTANTS

CABLE ADDRESS "HASKSELLS" CALVERT BUILDING BALTIMORE

WE ANNOUNCE THE OPENING OF AN OFFICE IN BOSTON ON SEPTEMBER 1, 1918, IN THE INDIA BUILDING, 84 STATE STREET, AND THE APPOINTMENT OF MR. RALPH K. HYDE, C. P. A. (MASSACHUSETTS), AS MANAGER.

HASKINS & SELLS.

MR. CONTRACTOR

If you have any bonds or warrants to sell, or know where you can obtain work and take same in payment, kindly advise, so that we can negotiate with you for their purchase. We have representatives in Birmingham, Alabama, Tampa, Florida and New Orleans, Louisiana. Correspondence solicited.

W. L. SLAYTON & CO. Toledo, Ohio

ASC SERVICE TO MANUFACTURERS, CONTRACTORS and BUSINESS PEOPLE

We will represent you in Washington and undertake the sale of your products to the Government and contractors for the Government.

AGENCY SERVICE CORPORATION

Suite 403 Maryland Building 1410 H St. N. W., Washington, D. C.

CHARLES L. HEHL, C. P. A., President JOHN KUCHLER, C. P. A., Vice-President
ERNEST E. WOODEN, C. P. A., Sec. and Treas.

BALTIMORE AUDIT COMPANY

901-903 Calvert Building BALTIMORE, MD.

HAVE YOU BONDS FOR SALE?

WE BUY ALL CLASSES OF MUNICIPAL BONDS, INCLUDING CITY, COUNTY, SCHOOL, PAYING, ROAD AND DRAINAGE

The Hanchett Bond Co. Inc.

39 SOUTH LA SALLE ST., CHICAGO

BEFORE INVESTING CAPITAL

in any new manufacturing enterprise, mechanical or chemical, inform yourself as to the patent situation. Those patents which you own or intend to buy—do they afford any real protection? Can the proposed goods be made and sold without infringing some other existing patent? Take no chances, but write

J. Hanson Boyden ADVISER ON PATENTS 918 F St., Washington, D. C.

Wm. F. Bockmiller, Pres. John G. Hullet, Secy

BALTIMORE OFFICE SUPPLY CO., Inc.

641 COLUMBIA AVE., BALTIMORE, MD.

Manufacturers of

Steel Die Embossed Stationery

Write for Samples and Prices

MACHINERY, PROPOSALS AND SUPPLIES WANTED

(Continued from page 107.)

plans and specifications on file with W. W. Cuthrell, Clerk; Wm. M. Platt, Engr., Durham, N. C.

Electric-light Plant.—Mississippi River Comsn., 1st and 2d Dists., Custom-house, V. A., engine-type, 2300-volt alternator with exciter and switchboard; power-house; Memphis, Tenn.—Bids until Oct. 24 on electric-light plant for hydraulic grader No. 1820. (See Turbines, Pump Set, etc.)

Elevator (Freight).—Guyan Machine Shops, Logan, W. Va.—Dealers' prices on freight elevator, about 1½ tons capacity; 16-ft. lift; pneumatic or A. C. motor drive.

Engines (Marine).—Office Lighthouse Supt., Baltimore, Md.—Bids until Oct. 7 to furnish 6 gasoline-kerosine marine engines; 6 H. P. each.

Engine.—Jos. E. Thropp, Everett, Pa.—Data and prices on 10 or 12 H. P. stationary steam engine. (See Boiler.)

Equalizers.—See Saws.

Feed Mills.—See Alfalfa Mills.

Fiber Machinery.—See Scraping Machines (Sisal, etc.)

Flooring.—N. Z. Butterick, 2342 Herschell St., Jacksonville, Fla.—Prices on oak flooring for residence.

Furniture (Hotel).—Rio Grande Valley Hotel Co., McAllen, Tex.—Furniture for \$57,000 hotel building.

Gasoline.—Panama Canal, A. L. Flint, Gen. Purchasing Officer, Washington, D. C.—Bids until Oct. 11 to furnish gasoline; blanks, etc. (circular 1232), obtainable Panama Canal office or offices Asst. Purchasing Agents, 24 State St., New York; 606 Common St., New Orleans, and Fort Mason, San Francisco; also from United States Engr. offices in principal cities.

Heating.—Duval County Board of Public Instruction, F. A. Hathaway, Supt., Jacksonville, Fla.—Bids until Oct. 12 for heating school building No. 38, according to plans and specifications of Rutledge Holmes, Jacksonville.

Heater (Feed Water).—See Turbines, Pump Set, etc.

Hose (Fire).—City of Charlotte, N. C., D. M. Abernethy, Purchasing Agent.—Bids until Oct. 14 to furnish 1000 ft. standard fire hose.

Kettles (Iron).—Northern Alkali & Chemical Co., R. D. Lamie, Mgr., Huntington, W. Va.—Prices on iron kettles for caustic potash; also metal tanks.

Lathe.—Nocona Machine Shop & Mfg. Co., A. K. Albert, Mgr., Nocona, Tex.—Prices on lathe.

Lathe, etc.—Guyan Machine Shops, Logan, W. Va.—Dealers' prices on lathe, shaper, drill press and saw for machine shop.

Locomotive.—Keiser-Geisner Engineering Co., 1308 American Trust Bldg., Birmingham, Ala.—Prices on second-hand, 8x12-in., standard-gauge, saddle-tank, 4-driver locomotive; first-class condition; describe.

Oil-well Equipment.—See Tubing, Casing, etc.

Ovens.—See Bakery Equipment.

Paving.—Government Heights Corp., J. J. Nyhoff, Treas., Wilmington, N. C.—Open bids Oct. 30 on 5300 ft. grading and graveling; W. K. Allen, Engr.

Paving.—City of Miami, Fla., J. W. B. Moore, City Clerk.—Bids until Oct. 10 to construct bituminous surface of sand and asphalt on streets in Fort Dallas Park; 2392 sq. yds.; plans and specifications on file with City Engr., 213 Townley Bldg.

Paving, etc.—City of Richmond, Va., Chas. E. Bolling, City Engr.—Bids until Oct. 4 to pave S. 4th St. (South Richmond) from Stockton St. to Seaboard Air Line Ry. right of way; grading, granite curbing, spill paving, concrete paving, brick culvert and street inlets and terra-cotta pipe; proposal forms from City Engr.

Pipe (Cast-iron).—Henry Potts & Co., 650 Real Estate Trust Bldg., Philadelphia, Pa. Dealers' prices on 4-in. and 24-in. diam. cast-iron bell and spigot pipe.

Peanut Machinery.—See Sheller.

Plates (Steel).—See Shafting, Angle Iron, etc.

Press (Drill).—Guyan Machine Shops, Logan, W. Va.—Dealers' prices on drill press. (See Lathe, etc.)

Pump (Fire).—Columbia Clay Co., Box 172, Columbia, S. C.—Second-hand fire pump, minimum capacity 500 G. P. M.; to pass Underwriters' inspection; name lowest cash price, condition and where located.

Punch.—Nashville Bridge Co., Nashville, Tenn.—Prices on punch; 36 or 42-in. throat, 1-in. hole in 1-in. material. (See Crane.)

Road Construction.—Campbell County Highway Comms., J. F. Cooper, Secy., Jacksboro, Tenn.—Bids at office of County Court Clerk, Jacksboro, until Oct. 28 to macadamize 13 mi. pike road between La Follette and Jellico.

Road Construction.—Jasper County Comms., C. C. Brown, County Judge, Jasper, Tex.—Bids until Oct. 15 to grade and surface 25.5 mi. of State Highway, No. 8, including concrete drainage structures; plans, etc., from G. R. Abney, County Engr., Jasper.

Road Construction.—Wayne County Court, H. W. Thompson, Prest., Wayne, W. Va.—Bids until Oct. 7 to pave with tar-bound macadam 2656 ft. of Piedmont Rd.; width 16 ft.; plans and specifications on file with Clerk of Court.

Road Construction.—Van Zandt County Comms., L. Davidson, County Judge, Canton, Tex.—Bids until Oct. 8 to construct 19 mi. of State Highway No. 15 (Dixie Highway) from Kaufman County line to Canton; 86,000 cu. yds. earth excavation, hauling, spreading and rolling 32,000 cu. yds. of gravel and rock and 850 cu. yds. of reinforced concrete; plans and specifications from State Highway Dept., Austin, Tex.; L. Davidson, County Judge, Canton, or A. B. Axtell, Dist. Engr., Wills Point, Tex.

Road Construction.—State Road Dept., Wm. F. Cooke, Commr., Tallahassee, Fla., and Manatee County Comms., Bradenton, Fla.—Bids until Oct. 7 to grade, drain and

surface with shell 11 mi. of road through Hillsborough county line, via Parrish, Bradenton; plans and specifications on file with State Road Dept. at Tallahassee and Division Engr. at Gainesville, Fla.

Road and Bridge Construction.—Anglin County Comms., Joe McCarthy, Highway Engr., Lufkin, Tex.—Bids until Sept. 30 to construct Lufkin-Nacogdoches Road; include grading, surfacing with gravel, reinforced concrete bridges, 2200 lbs. timber bridges and corrugated iron pipe plans and specifications from Highway Engr. at Lufkin, and State Highway Dept., Capitol Bldg., Austin, Tex.

Saws (Cylinder).—R. P. Johnson, Wytheville, Va.—Dealers' prices on one each 26-in. Whitney cylinder stove saws; with or without equalizers, shafting and pulleys, etc.

Scraping Machines (Sisal, etc.).—A. C. Catedra, 316 Lakeview Ave. (Box 1196), San Antonio, Tex.—Data and prices on scraping machines for Mexican sisal, lechuguilla and palma litle; quick delivery, f. o. b. Eagle Pass. State capacity, power—electric or steam, steam preferred; number of men needed to operate machines; amount power or fuel for operation per hour, etc.

Shafting, Pulleys, etc.—See Saws.

Saw.—See Lathe, etc.

Shafting, Angle Iron, etc.—Guyan Machine Works, Logan, W. Va.—Dealers' prices on cold-rolled shafting, angle iron and steel plates.

Shaper.—Guyan Machine Shops, Logan, W. Va.—Dealers' prices on shaper. (See Lathe, etc.)

Sheller (Peanut).—M. E. Peterson, Fort Gaines, Ga.—Data and prices on peanut sheller; contemplates investment of \$100 to \$2000.

Steel Building.—Crescent Foundry Co., 110 Browns Race, Rochester, N. Y.—Good strong second-hand steel building, about 70x160, suitable for foundry; 25 or 30-ton crane capacity.

Switch and Frog.—Guyan Machine Shops, Logan, W. Va.—Dealers' prices on 75-lb. switch with ground throw and No. 7 frog.

Tanks (Oil).—Eure Motor Co., Grimsley Bldg., Ayden, N. C.—Prices on 2 or 3 second-hand, good cylinder oil steel or iron tanks, with pumps about 1-bbl. capacity.

Tanks (Metal).—Northern Alkali & Chemical Co., R. D. Lamie, Mgr., Huntington, W. Va.—Prices on metal tanks. (See Kettles.)

Tubing, Casing, etc.—Big Six Oil Co., A. C. Carpenter, Secy., Jackson, Ky.—Prices on tubing, casing, etc., for completion of oil and gas wells; including 3-in. 8-lb. tubing.

Turbines, Pump Set, etc.—Mississippi River Comsn., 1st and 2d Dists., Custom-house, Memphis, Tenn.—Bids until Oct. 24 to furnish turbines, pump set, feed water heater and electric-light plant for hydraulic grader No. 1820; further information on application.

RAILROAD CONSTRUCTION

RAILWAYS

Ala., Anniston.—Anniston & Camp McClellan Transportation Co., with authorized capital stock of \$160,000, has been inc'd. to build a transportation line or railroad between the two points named. Incorporators: J. B. Carrington and others.

Ark., Hot Springs.—Memphis, Dallas & Gulf Railroad, it is reported, has let contract for an extension to timber lands in the northeast part of Garland County. W. W. Brown, Nashville, Ark., is Prest.

STREET RAILWAYS

Ga., Columbus.—Columbus Railroad Co. contemplates building an extension into the military camp near Columbus. J. S. Bleckley is Mgr.

SERVICE BUREAU OF THE COMMITTEE ON PUBLIC INFORMATION

FIFTEENTH AND G STREETS WASHINGTON, D. C.

Information available as to Officials, Functions, and Location of all Government Departments

Fidelity and Burglary Insurance



Surety Bonds

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BALTIMORE

EDWIN WARFIELD, President

MURPHY'S HOTEL Richmond, Va.

Virginia's largest and Richmond's most centrally located Hotel.

Every car line in the City passes Murphy's.

Rooms single and en suite.

Railroad tickets sold and baggage checked at Hotel.

Main Hotel and Grace Street Annex fireproof. Rates \$1.00 and Up

JAMES T. DISNEY, Manager

Strayer's Business College, Inc.

Charles and Fayette Sts. Baltimore, Md.

Ninth and F Sts. N. W. Washington, D. C.

Fully accredited by the National Association of Accredited Commercial Schools. Teaching latest methods in Shorthand, Typewriting and Commercial Subjects. Departments headed by Degree Teachers.

The Government needs TEN THOUSAND STENOGRAPHERS, and a representative of the Civil Service Commission visited Strayer's Business College recently and urged us to provide as many as possible.

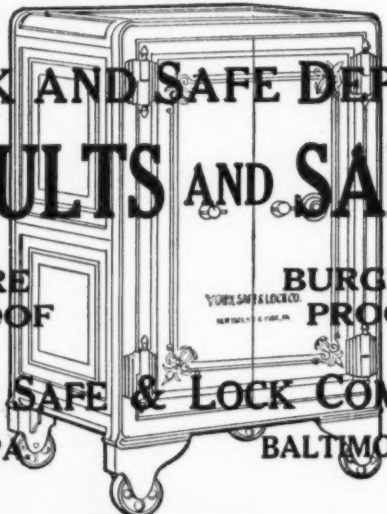
This is YOUR opportunity. Classes now open. Day and Night School all the year. Enroll at once. Write us today.

BANK AND SAFE DEPOSIT VAULTS AND SAFES

FIRE PROOF

BURGLAR PROOF

YORK SAFE & LOCK COMPANY
YORK, PA. BALTIMORE, MD.





Barrett Specification Roof
on Plant of Tabor Ice
Cream Co., Cleveland, Ohio.
Architect: C. D. Cooley Co.,
Pittsburgh, Pa. Roofer:
Lee H. Gould & Co., Cleve-
land, Ohio. Gen. Contrs.:
The Remick Con. Co.,
Cleveland, Ohio.

The roof on this plant is soaking wet 24 hours a day, 365 days in the year!

Can you imagine a more severe test than to have a perpetual shower falling on a roof every day and night year in and year out?

This is what happens to the Barrett Specification Roof on the Tabor Ice Cream Co. plant illustrated above.

This shower comes from the big water-cooler on top of the structure which is used for cooling the ammonia.

No ordinary roof would stand up under such conditions.

And that is why the Tabor Ice Cream Co. had its million-dollar plant protected with a Barrett Specification Roof.

Even such a severe test has no terrors for a Barrett Specification Roof, because it is planned to meet just such extreme conditions.

No other roof contains as much protective waterproofing material in its construction, and that is the reason these roofs give such long and satisfactory service.

Not only do Barrett Specification Roofs last longer than others, but they *cost less per year of service*; they take the base rate of insurance and *carry a 20-Year Surety Bond Guaranty.*

20-Year Guaranty

We now guarantee Barrett Specification Roofs to last for twenty years without cost for maintenance. No charge for the guaranty, for it gives us a chance to protect the good repute of these roofs. The guaranty is a Surety Bond issued by

one of the largest surety companies in America, the United States Fidelity and Guaranty Company of Baltimore. It is offered on all roofs of fifty squares and over in all cities in the United States and Canada of 25,000 population and more, and in smaller places also where our Inspection Service is available.

The *Barrett* Company



New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati Pittsburgh
Detroit Birmingham Kansas City Minneapolis Nashville Salt Lake City Seattle
Peoria Atlanta Duluth Milwaukee Bangor Washington Johnstown Lebanon
Youngstown Toledo Columbus Richmond Latrobe Bethlehem Elizabeth Buffalo Baltimore
THE BARRETT COMPANY, LIMITED: Montreal Toronto Winnipeg Vancouver St. John, N. B.
Halifax, N. S. Sydney, N. S.



View of the building of
the Tabor Ice Cream Co.,
Cleveland, Ohio, which is
roofed with a Barrett Spec-
ification Roof.

Classified Opportunities

MINERAL AND TIMBER LANDS WATER POWERS MISCELLANEOUS PROPERTIES

GRAPHITE LANDS for sale in Chilton and Coosa Counties. I have several 80 and 100-acre tracts with prospecting all done, with timber to build plants and water to operate; abstract titles and prices right if interested. Call on or write Louis T. Dennis, Verbena, Ala., Route 2.

FOR GOOD VALUES in Virginia blue grass or general purpose farms, coal and timber lands, and Roanoke City and suburban property, factory sites particularly, address Ellis L. Wright, 813 South Jefferson Street, Roanoke, Va.

MINERAL LAND WANTED

WANTED—To hear from parties owning any kind of mineral property.
UNITED MINERALS CO.,
ROANOKE, VA.

OIL PRODUCTION

520 ACRES of partly-developed oil and gas leases for sale. This property has eight producing wells fully equipped with modern power plants, paying a good dividend, in the surest oil and gas field in the world—Oklahoma. Great possibilities on full development. Will sell all or an interest for further development purposes. W. D. Hume, Muskogee, Okla.

ZINC AND LEAD LANDS

FOR SALE—Forty acres zinc and lead land in the proven district, Marion County, Ark.; mines in operation on all sides; perfect title in fee; worth \$5000; sell for \$1500. A. F. Williams, 166 W. Adams St., Chicago, Ill.

MANGANESE ORE LANDS

MANGANESE ORE LANDS—Developed or unimproved manganese lands in the heart of the Arkansas manganese field. Tracts vary in size from 40 to 1000 acres. We can fill requirements of any buyer. Abundance of water and timber. Junius R. Case, Batesville, Arkansas.

MANGANESE ORE LANDS—400 acres high-grade manganese ore lands analysis show from 56.10 to 59.30 tan bark, and extract wood will pay half price asked; two to four miles from railroad. Seventy-five ton furnaces now idle and for sale, located three miles from this ore. Box 289, Wytheville, Va.

700 ACRES MANGANESE ORE LANDS for sale; engineer's estimate, 800,000 tons; railroad one mile; now mining with pick and shovel; analysis and records available. Address Doak Argyle, Tullahoma, Tenn.

WE HAVE for sale 1000 acres proven high-grade ore land. Correspondence solicited from actual responsible buyers. E. S. Wilder & Co., Charlottesville, Va.

COAL LANDS AND MINES

KENTUCKY GAS & BY-PRODUCT COAL.

Opening mines, Harlan & Hazard Fields, sold to consumers of Central West. Low sulphur and ash, especially suited for malleable-iron producers. Consumers can assure themselves of uniform quality and desired quantity. Agent also for virgin coal lands. Reference—any Louisville bank. Upon request will be pleased to refer to large consumers whom I have located in this territory.

J. STODDARD JOHNSTON,

PAUL JONES BUILDING,

LOUISVILLE, KY.

COAL MINE FOR SALE, with electrical equipment, and 21,000 acres of good coal land, on which is much valuable timber and two mills; near the Southern Railway, in Alabama, 66 miles westerly from Chattanooga, Tenn. Bon Air seam, 40 inches thick, of high grade for domestic use or as steam coal; good markets and reasonable freight rates covering a large territory. For sale cheap to close an estate. For full particulars address F. D. Pierce, Bridgeport, Ala.

FOR SALE—250 acres of coal, 5½ ft. vein, Hocking No. 6, in Hocking county, Ohio. 1000 feet from main line of the Hocking Valley railroad. All other mineral rights reserved. Call on or address Hamilton Brothers, Bellefontaine, Ohio.

FOR SALE—Several going coal operations in West Virginia mining high-grade seams of coal of good thickness; excellent properties that are good producers, not mines out or other objectionable features. Properties worth the price asked. Not looking for other suckers, agents or shoppers. N. R., P. O. Box 463, Charleston, W. Va.

MANUFACTURERS and coal dealers, attention! Why not own your own coal mines? A mine in operation and 1200-acre lease for sale. Net earnings 40 per cent. last year. Located on Louisville & Nashville Railroad. Price \$125,000. M. H. Irwin, Coal Creek, Tenn.

COAL AND TIMBER LAND

FOR SALE—Bargain; 90,000 acres Tennessee coal and timber land in parcels of 5000 to 10,000 acres, or together, \$3.00 to \$10.00 per acre; part on railroad, part fine virgin timber; good titles; exposures of highest grade coking coal. Owned by estates. E. H. Benoit, 1921 Boatmen's Bank, St. Louis, Mo.

RATES AND CONDITIONS

Rate 25 cents per line per insertion. Minimum space accepted, four lines. In estimating the cost, allow seven words of ordinary length to a line. When the advertisement contains a number of long words, proper allowance should be made. Terms: Invariably cash with order; check, postoffice or express order or stamps accepted. No display type used. Questionable or undesirable advertisements will not be accepted. The assistance of our readers in excluding undesirable advertisements is requested. We reserve the right to refuse any advertisement. No patent medicine, whiskey or mining stock advertisements accepted. Rate for special contracts covering space used as desired within one year as follows: 100 lines, 23c. per line; 300 lines, 21c. per line; 500 lines or more, 20c. per line.

COAL AND TIMBER LAND

50,000 ACRES Tennessee coal and timber lands, located in Lincoln, Franklin and Coffee counties; must sell to settle partnership. Price \$2.50 per acre; \$15,000 cash, balance on ten equal annual payments. Would accept exchange property to the amount of one-half. T. N. Figuers, Jr., Columbia, Tenn.

LOANS ON TIMBER LANDS

SALES NEGOTIATED
Check Estimates for Loans on Timber Lands. Consulting Forester and Timber Land Factor. 25 Years' Experience. All Parts of Country.
F. R. MEIER,
165 Broadway, New York, N. Y.

TIMBER OPERATION

ABOUT one hundred million feet standing timber, short-leaf pine, in North Carolina; well located. Can also furnish equipment, including rail, locomotives, skidders, team sawmill, planing mill and dry kiln equipment, in splendid condition. William P. Redd, 30 North Ninth St., Richmond, Va.

TIMBER WANTED

WANTED—WALNUT TIMBER.—The Government needs it to help win the war. If you have any of this timber, it is your patriotic duty to sell it now. We are paying the highest market prices. Bristol Door & Lumber Co., Bristol, Tenn.

TIMBER

FOR SALE—Fifty million feet of fine South Carolina timber, consisting of thirty-nine million feet red gum, five million oak, three million cypress, three million short-leaf pine. This timber is very large and of fine quality; easily logged at any time of the year. Price reasonable. Accessible to railroads. Will bear closest investigation. Address No. 5933, care Manufacturers Record.

FOR SALE—20,000,000 to 100,000,000 feet (any amount) hardwood timber, principally gum and oak; South Arkansas; fine location for mill site on R. R. Good price for quick sale. Address A. B. Cudd, Box 484, Monroe, La.

FOR SALE—Rosemary and short-leaf pine timber sawed to specifications up to 40 ft.; also hickory, gum and oak to dimensions as required. W. L. Coston, Bessemer, Ala.

FOR SALE—Three million feet short-leaf and rosemary pine on four hundred acres land, Clarendon County, South Carolina, four miles from railroad station. Can be easily logged and shipped. If interested, communicate with owners. The Central American Cattle Co., Inc., New Orleans, La.

TIMBER LAND

5000 ACRES of original forest lands for sale in West Florida, located on railroad; below frost line, in fertile truck and citrus fruit farm section, with artesian water for irrigation, at \$12 per acre. Free-simple sawmill and cross-tie timber enough to pay for it, and such lands sell in small tracts for farm purposes at \$50 per acre. Write Thomas Camp, 37 Norcross street, Atlanta, Ga.

INVEST IN HARDWOOD.
Big, legitimate and permanent profits. The one natural resource rapidly going out of existence. 100,000 acres virgin hardwood timber lands in Arkansas, Louisiana and Mississippi guaranteed estimate by forties. Write Owners—Arkansas Timber Land Company, Incorporated, 401-403 Southern Trust Bldg., Little Rock, Ark.

FARM AND TIMBER LANDS

CUT-OVER LAND FOR SALE—Approximately 40,000 acres cut-over land in Southern Georgia; acreage commences within 2 miles main line railroad, and is all in a solid body. This acreage was sawmilled about 25 years ago; will now cut 80,000,000 feet long-leaf yellow-pine timber, suitable for sawmilling. This tract is most ideal for sheep or cattle range. Price in fee simple is \$6 per acre. Will accept ¼ cash, balance easy terms. Either the timber without the land or the land without the timber is cheap at the price. Good farming land. Address J. M. Cox, Waycross, Ga.

WE OWN LARGE TRACTS OF TIMBER LANDS, cut-over lands and colonizing lands. If interested—address H. H. Wefel, Jr., & Co., Mo.

FRUIT, FARM AND TRUCK LANDS

ALABAMA

A REAL BARGAIN—84 acres in the heart of the largest payrolls of Birmingham; residence section already built around two sides of this property; 5-cent carfare to any part of city; double car service in front and another car line a short distance back of property. One \$25,000,000 steel plant being built below this land, and another large steel plant already in operation only a short distance back of this property. Two shipbuilding plants are being built only a few miles away, with a strong possibility of the Baldwin Locomotive Steam Engine Works building here. Will sell on terms. L. N. Nabors, Montevallo, Ala.

FLORIDA

A BEAUTIFUL WINTER HOME, a profitable orange and grapefruit grove, a general farm, cattle, hog or poultry ranch in the famous Indian River section, Vero, Florida. The wonderful climate permits not only agricultural operations all the year, but all enjoyable, life-prolonging outdoor sports. Investigate now this wonderfully charming section. Indian River Farms Company, First National Bank Building, Vero, Florida.

AT MIAMI, FLORIDA.
NEARLY SIX THOUSAND FEET OF OCEAN BEACH FRONTAGE.

One of the best investments of the day, as I can offer this tract at \$350 an acre for a short time. The property extends back to Biscayne Bay and the East Coast Canal, and is in very close proximity to Miami. It's worth three times my price, and I will be glad to give particulars and the reason why it is offered so low on request.

Ten thousand acres, with water frontage, especially suitable to cattle raising, at \$15 per acre. This is a real piece of soil, and is accessible to Miami by good hard road. Write me for reliable information regarding Miami and Dade County, Florida. I have large and small tracts of timber land, grapefruit groves and farm land, and I find it no trouble to answer questions.

WILLIAM I. PHILLIPS,
151 Twelfth Street, Miami, Florida.
15 years in the real estate business in Florida.
Reference, Bank of Bay Biscayne, Miami Chamber of Commerce.

ESTABLISHED DAIRY

IN SUBURBS OF MIAMI, FLORIDA.

One hundred acres excellent land, concrete dairy building worth fifty thousand dollars, hundred twenty-five head Guernsey, Jersey and Holstein cows. Is located very close to Miami, and directly on navigable canal 90 feet wide. This proposition is now earning over ten thousand dollars annually. Is well established, and commands the very best reputation. Price, \$100,000, and it's worth fifty per cent. more, easy. If you are interested, will be glad to send photographs and facts that will open your eyes.

WILLIAM I. PHILLIPS,
151 Twelfth Street,
Miami, Florida.
Reference Bank of Bay Biscayne, Miami Chamber of Commerce.

FOR SALE—Palms Villa, on Sarasota Bay, near Sarasota, Florida; one of the most attractive water-front homes in Florida; with or without fruit groves. A gentleman's estate par excellence. For illustrated literature, prices and any information, write J. M. Clark, Sarasota, Florida, or any broker.

GEORGIA

FOR LEASE OR SALE—2500-acre stock farm in healthy middle Georgia, partly stocked with Hereford cows and Duroc hogs; all fenced with hog wire; 1000 acres cultivated by croppers; 20 mules and farm implements; never-failing water in every field. A well-established farm, but requires money to keep it going. Lease \$2500 per year. Sell everything for \$50,000. Full particulars on request. J. C. Burruss, owner, Empire Bldg., Atlanta. J. C. Burruss, owner, Empire Bldg., Atlanta, Ga.

6000 ACRES South Georgia land, well suited for stock raising and general farming. It is mostly cut-over land, but has several open farms under cultivation with quite a bit of good wire fencing. Convenient to two railroads. Easy shipping distance of Swift's packing plant at Moultrie. For \$10 an acre. McLendon Bros., Third National Bank Bldg., Atlanta, Ga.

FOR SALE—Between 700 and 800 acres in White county, Ga.; 400 to 500 acres well adapted to fruit growing, balance good pasture; waterfall 75 to 100 feet; 2 dwellings; corn, wheat and feed mill, other buildings. Quick sale, \$18,000. W. I. Hobbs, Gainesville, Ga.

LOUISIANA

FOR SALE—Ideal location for stock farm, 23 miles from Baton Rouge, La., public road to Greensburg, and on Atchafalaya River. Small part in cultivation, several tenant-houses; place ideal for stock farm, open range; plenty fresh running water. Hogs, and especially cattle, would thrive and grow fat on natural range. Very little land necessary for winter months. Place also ideal for any other farm purpose if scientific farming methods should be brought into use. Price twenty dollars per acre. Apply to B. Thompson & Co., owners, 308 Poydras Street, New Orleans, La.

MISSISSIPPI

1280 ACRES highly improved general stock farm, 5 miles from county seat, Madison County, Miss. New residence, barn, new silo, new fences, deep well, 12 tenant-houses. Will sacrifice this farm, \$35 per acre, as the owner has been drafted and is in the service. Only one-fourth cash balance, long time. A. H. Cauthen, Canton, Mississippi.

NEW MEXICO

FOR SALE OR EXCHANGE—Fine proved 15-year-old irrigated orchard and alfalfa farm, 157 acres, and 40 acres additional pasture land, in famous Pecos Valley, New Mexico, near Roswell, a city of 12,000. Unnumbered property in East or West. Prefer well-improved farm near large city. D. H. Moore, Athens, Ohio.

SOUTH CAROLINA

FOR RENT OR SALE—One of the tobacco and cotton farms in South Carolina. Parties in neighborhood making as much as \$900 worth tobacco per acre, and much of cypress and green timber, also lot of timber on place. Right at railroad station. Fine opportunity to rent or buy. Address M. K. Lee, Monroe, N. C.

FOR SALE—3000-acre island hunting preserve near Charleston, S. C. Lots of deer and deer, fish, etc. Price low. Carolina Land Agency, Mt. Pleasant, S. C.

VIRGINIA

FOR SALE—100 acres fine orchard land with 700 bearing trees.
LIBERTY REALTY CO.,
ROANOKE, VA.

WEST VIRGINIA

FOR SALE—Fine farm near Charleston, W. Va., 400 acres, two dwelling-houses, paved road, \$27,000; ideal for livestock and general farming; railroad facilities. Miller & Ripley, Brokers, 5 Morrison Bldg., Charleston, W. Va.

FOR SALE—230-acre farm, Kanawha Valley; water and railroad facilities; 3 large dwelling-houses; close to school, church and markets; \$32,000; near Charleston, W. Va. Miller & Ripley, Brokers, 5 Morrison Bldg., Charleston, W. Va.

SUBURBAN HOME

FOR SALE—Fine suburban home, Charleston, W. Va., overlooking city; eight rooms and garage; first floor brownstone, second floor green tile roof; lot 80x300 ft.; \$12,000; good terms. Miller & Ripley, Brokers, 5 Morrison Bldg., Charleston, W. Va.

BUSINESS OPPORTUNITIES

FARMING OPPORTUNITIES AND INDUSTRIAL SITES along the Winston-Salem Southbound Rwy. Co. Here climate, transportation, good roads, fine schools and excellent markets contribute to the success of farming, and the large and prosperous industrial centers along our lines offer splendid locations for industries of various kinds. Address S. P. Collier, Jr., Winston-Salem, N. C.

MANUFACTURING PLANT FOR SALE
A well-equipped plant grinding limestone for agricultural use and mineral filler for asphalt paving, with good farm in connection; located in Central Florida; a splendid opportunity to get a good-paying business; good reasons for selling. Address No. 588, care Manufacturers Record, Balto., Md.

WANTED—Responsible party to log saw million feet of lumber; will pay a good price. Liberty Lumber Yard, Roanoke, Va.

WE CAN SELL YOUR BUSINESS for cash, no matter where located; no publicity. Describe fully in first letter. Address correspondence confidential. Herbert, Webster Bldg., Chicago.

BIG SUGAR proposition. 80,000 acres sugar cane or sugar beet land. Can sell one-third stock to Florida people. \$7.50 per acre. Case never freezes. No trade. Sadler, Fort Myers, Fla.

FOR SALE—Three concrete factory buildings built in 1909 and since; midway between N. Y. City and Philadelphia; on good railroads; fine soft water by windmill and engine; 40 acres good truck land, free of any stones. Sell whole or part at reasonable price; in fact, less than cost. Address Joseph Rogers, Jr., Farmingdale, New York.

BUSINESS OPPORTUNITIES

BUSINESS OPPORTUNITY.—Save labor, trackside warehouse; suitable for storage of merchandise; warehouse; approx. 27,000 sq. ft. of floor space; in heart of Washington; concrete and brick construction; Price \$35,000; way below present value. 233 6th St. S. W., Washington, D. C.

FOR SALE.—Forty thousand feet cypress, oak, white oak, red gum, poplar, red gum, gum post and white oak. One 4000-capacity Clark Band Mill. Well-equipped yarding facility. Mill now in actual operation, located in nice town, with good labor supply. An excellent opportunity for hard-wood operator. Present owners without experience in hardwood and cypress are ready to make sale. Will deal with principals only. Address No. 5173, care Manufacturers Record, Balto., Md.

FOR SALE.—Inventor of automatic re-feeding vending machine for bottled soft drinks; real machine, which transacts business with bottles and ice man. Will proposition to sell right to manufacturers and operate machines in several States. Address Box 461, Macon, Ga.

FOR SALE.—On Capitol street near Post Office Square, Charleston, W. Va., 3-story brick building, 22x125 ft.; \$85,000. \$25,000 cash, \$2500 year. Miller & Ripley, Brokers, Morrison Bldg., Charleston, W. Va.

EXCELLENT OPPORTUNITIES IN FLORIDA.—Fortunes have been made by enterprising residents in the fast-growing city of Miami who invested in real estate while enjoying the climate. Miami's very best business corner for sale. Present income, \$15,000 annum. Isidor Cohen, Real Estate and Investments, 217 11th Street, Miami, Fla.

FLORIDA SUGAR TO THE RESCUE!—Farmers here raise 400 to 700 gals. cane syrup the acre; sells \$1 per gal. Sugar factories located. I have 3000 acres finest sugar stock land; 20 miles from Jacksonville, Fla. Want reliable man to take interest and develop together. W. B. Baldwin, Baldwin, Fla.

TO THOSE who are interested in buying and selling steamers, motor-ships, yachts, fishing vessels, barges ready or under construction—Americans, neutrals or allies should apply to Dennis Thakos, 15 Whitehall St., New York.

FOR SALE.—At Kittrell, N. C., ten-room dwelling, two baths, running water. Fine location near railroad. About 17 acres land, equipped for raising poultry and pigeons. Three-story factory building on place. Two wells good water. Photos on request. Mrs. C. V. Barnes, Kittrell, N. C.

FOR LEASE.—Large building, suitable for textile mill; water and electricity; favorable labor conditions. Factory Locators, Roanoke, Va.

GOVERNMENT CONTRACTS

REPRESENTATION before Congress, all Courts, Government Boards and Departments. We specialize in daily reporting Government requirements. Expert attention to Government bidders and contractors. U. S. Legal Corporation, Washington, D. C.

INCORPORATING COMPANIES

DELAWARE CHARTERS. Stock Without Par Value. Directors Need Not Be Stockholders. Other important amendments (March 20, 1917) Write for new DIGEST (4th ed.). CORPORATION COMPANY OF DELAWARE Equitable Building, Wilmington, Delaware.

TRADE ACCEPTANCES

"Trade Acceptance" forms supplied. Request sample. Commercial Form Co., Passaic, N. J.

PATENT ATTORNEYS

PATENT YOUR IDEAS.—\$9000 offered for certain inventions; book, "How to Obtain a Patent," and "What to Invent," sent free upon request; send rough sketch for free report as to patentability. We advertise your patent for sale at our expense. Chandler & Chandler, Patent Attorneys, 978 F St., Washington, D. C.

PATENTS, TRADE-MARKS AND COPYRIGHTS.—Write for list of patent buyers and inventions wanted. \$1,000,000 in prizes offered for inventions. Send sketch for free opinion as to patentability. Our four books sent free. We assist inventors to sell their inventions. Victor J. Evans Co., Patent Attorneys, 712 Ninth St., Washington, D. C.

PATENTS AND TRADEMARKS procured by a former Examining Official of the U. S. Patent Office. NORMAN T. WHITAKER, Mechanical Engineer, 100 Whitaker Bldg., Washington, D. C. Inquiries Invited

PATENT ATTORNEYS

PATENT YOUR IDEAS.—\$9000 offered for certain inventions; book, "How to Obtain a Patent," and "What to Invent," sent free upon request; send rough sketch for free report as to patentability. We advertise your patent for sale at our expense. Chandler & Chandler, Patent Attorneys, 978 F St., Washington, D. C.

FACTORY SITES

BALTIMORE FACTORY AND TERMINAL SITES.—Statement of Asa G. Candler, President The Coca-Cola Co.: "Investigation convinced us that Baltimore is not only the commercial metropolis for Southern trade, but that it affords shipping opportunities both by water and rail for domestic and foreign traffic superior to any of the great cities in any section of the United States." Locate in Baltimore and derive these advantages. We can provide accommodations to meet your requirements.

"OUR MOTTO":
FACTORY AND TERMINAL SITES
Wm. B. Martien & Co.,
Ninth Floor, Lexington St. Bldg., Balto., Md.

EXCELLENT FACTORY SITE,

100 feet x 300 feet.

Adjoining our plant, with railroad and brick highway facilities, 1000 H. P. electric power, also steam, refrigeration and water supply available. 14 miles from center of city of 10,000 population.

Inquiries Solicited.

ORLANDO WATER & LIGHT COMPANY,
Orlando, Fla.

FOR LEASE.—Splendid location for shirt or overall factory; large building, electric current and labor. Columbia Specialty Co., Roanoke, Va.

FOR SALE.
Ideal Location for Blast Furnace.
Factory Locators,
Roanoke, Va.

MOTOR TRUCK FACTORY.
Ideal location for motor truck or automobile factory or assembling plant, near tide-water, surrounded by abundance of raw materials. Would take interest ourselves and like to correspond with manufacturers seeking location or with man of experience, ability and means who would organize and manage a company. Talltimber Lumber Company, Talltimber, Sabine County, Texas.

FOR SALE.
Fine Location for Textile Mill.
Factory Locators,
Roanoke, Va.

FOR SALE.—Fine factory sites, railroad frontage, abundance of water, electric power, street-car facilities; will sell from 1 acre up to 200 acres. Factory Locators, Roanoke, Va.

INDUSTRIAL PLANTS FOR SALE

FOUNDRY, MACHINE SHOP AND WOODWORKING PLANT

EQUIPPED Foundry and Machine Shop, Central Location, Abundant Help, Penna. Sidings, Steel Frame Buildings, Large Reservoir, Early Possession. Level Ground Suitable for Growing Concern.

ALSO
Large Fully Equipped Woodworking Plant, Modern Machinery, Dry Kilns, Railroad Sidings, etc. CROSS & BROWN COMPANY, 18 E. 41st Street, New York City.

WOODWORKING PLANT

LARGE WOODWORKING FACTORY. 3-story brick building, equipped with American machines throughout, all new; dry-kilns, fine power plant, large storage yard, good sidings, connects four railroads; plenty empty cars, located on river, and can ship any point on Ohio or Mississippi Rivers; rich timber area to supply plant for century to come; largest axe plant, glass plants, armor plant, powder plant in world surrounds this property; also steel and chemicals plants. Wonderful opportunity for right party. Will sell on easy terms. Owner now in Government service. Wire or write P. P. Breece, Box 344, Charleston, W. Va.

BLAST FURNACE

FOR SALE OR LEASE.—Small charcoal blast furnace. Unlimited quantity of low-phosphorus brown ore on the property. Plenty of good wood that can be had at reasonable prices. Furnace can be started in 30 days. Address J. G. Thomson, 140 Coffee St., Talladega, Ala.

INDUSTRIAL PLANTS FOR SALE

MANUFACTURING PLANT

PLANT FOR SALE

OR LEASE,

CONSISTING OF

MACHINE SHOPS,

FOUNDRY AND POWER-HOUSE.

Buildings used by agricultural implement and gas engine manufacturers, retired, covering three city blocks, one vacant. 500 feet of track on main line C. & N. W. Ry., opposite American Steel & Wire plant at De Kalb, Ill., 60 miles from Chicago. First floor concreted. Lease will be made suiting Government contracts. Write Henry B. Clyde, Secy., Jacob Haisch Company, De Kalb, Ill.

ICE AND LIGHT PLANT

COMBINATION ICE AND LIGHTING PLANT, located in one of the healthiest sections of South Carolina; equipment in best of condition and urgent demand for all ice we can produce. Can arrange terms and give possession at once. Come and see it in operation. Boyd Utilities Plant, Johnston, S.C.

STONE-CUSHING PLANT

FOR SALE.—Fully-equipped crushing plant. In operation now. Contracts for six months. Unlimited supply stone. Willing to form stock company or partnership, or will sell outright. Junior member in draft age. Southern Crushed Stone & Granite Co., Inc., Trenton, N. C.

BAND MILL

FOR SALE.—Stearns 8-ft. band mill, with power plant, filling-room machinery and full equipment. Immediate possession. Full description on request. Clear Fork Lumber Co., Unicoi, Tennessee.

SITUATIONS WANTED

SUPERINTENDENT AND CIVIL ENGINEER will complete present contract by November 1st, and will then be open for engagement; have had 10 years' experience in the construction of highways, sewer and water systems in all their details. State class of work, size of job and location. Southern locality preferred. Salary, \$250. Address No. 5173, care Manufacturers Record.

YOUNG ENGINEER, located Richmond, Virginia, desires executive position. Has seven years' experience in building construction, office management, accounting and sales. Will consider selling accounts. Deferred classification. Address No. 5173, care Manufacturers Record, Baltimore, Md.

OFFICE MANAGER with executive training, familiar with cost and financial accounting, purchasing and credits; now in eleventh year secretary-treasurer of machinery manufacturing corporation in the South; no room for further promotion in present corporation, so desires connection with office end of manufacturing concern; college education; age 41; good health; married. Salary, \$6000 minimum. Confidential. Address No. 5170, care Manufacturers Record, Balto., Md.

MEN WANTED

THE new draft program is creating extraordinary opportunities for men who cannot enter active service. Offer your services where you can deliver the greatest possible amount of individual aid to the war-time industrial program. If actually qualified for salary between \$2500 and \$25,000, communicate with undersigned, who will negotiate strictly confidential preliminaries for such positions; executive, administrative, technical, professional; all lines. Not an employment agency; undersigned acts in direct confidential capacity, not jeopardizing present connections. Established 1910. Send name and address only for explanatory details. R. W. Bixby, E-64-66, Niagara street, Buffalo, N. Y.

WANTED—QUARRY SUPERINTENDENT.—experienced handling large stone quarry. Also experienced foremen in water construction and general construction. Also clerks, bookkeepers and stenographers. Raleigh Granite Co., Norfolk, Va.; Raleigh, N. C.

WANTED—City Manager. Must be electrical engineer and understand semi-diesel oil engines. Address G. F. Border, Mayor, Mangum, Okla.

MACHINERY AND SUPPLIES

ONE Metz & Weiss 3-cyl. 2-cycle 150 H. P. Oil Engine, 40,000 lbs., complete, with 125 KVA. Westinghouse Generator, 2300 volts, 3-phase, 60-cycle, 240 R. P. M.; price, complete set, \$5500 f. o. b. cars; cost new now \$17,000. One Warren 60 K. W., single phase, 1100 volts, speed 500, with N. Eng. Exciter 3.5; price, complete, \$800. Two Ball Engines, 13x12. Two 80 H. P. Boilers; one Penna., one Westinghouse-Church, with stacks 24"x 35"; price, \$800 each. One MacIntosh-Seymour Engine, direct connected to 100 K. W. 220-volt 3-phase 60-cycle 225 R. P. M. Generator, complete set, \$5000. One 100 K. W. General Electric Multipolar Direct-Current Generator, Type M. F., Class S, 600 V., Amp. 180, speed 600; price, \$1500. One Harrisburg F. M. Standard Engine, 15x15, direct connected to Triumph Direct-Current Generator, 100 K. W., 250 R. P. M.; price \$2500. One 300 K. W. Westinghouse Rotary 60-cycle 600 V., with 6 100 K. W. 11,000 V. Transformers, Switchboard, etc.; price, \$11,500. S. M. Kit-miller & Bro., Shippensburg, Pa.

BOILERS, tanks, engines, machinery, anything of steel construction is high priced, necessarily so; send your requirements and let us furnish used articles like new; if not on hand we will locate same for you; also write us if you have anything of the above nature to sell; let us market it for you. Service Sales Co., Room 604, American Bank Bldg., Kansas City, Mo.

Wheel and Circular Sawmill Complete for Operating. Capacity 20,000 Feet. Write for blueprints and machinery list. 25 H. P. Center Crank Wheeland Engine. 25 H. P. Byers Log Loader with car. 13-ton, upright type, Climax Locomotive. All above in first-class condition. H. P. Wyman Lumber Co., Bristol, Va.

FOR SALE.—One 2½-inch two-stage centrifugal pump; one 3-inch two-stage centrifugal pump; one 3-inch Myers bulldozer, all guaranteed to be in good working condition. Also, about 3000 feet of 6 and 8-inch black wrought-iron pipe in excellent condition. Cohoon Bros., Orlando, Fla.

FOR SALE.—One iron planer, bed 22"x8' 6"; condition good. One Houston, Stanwood & Gamble 15"x18" side-crank engine, good as new. Prices attractive. Pence Machinery Co., Memphis, Tenn.

FOR SALE.—Two Fairbanks-Morse duplex pumps, sizes 8-12, 10-12. Good condition. Wylie Bros., 326 West Grand, Oklahoma City.

FOR SALE
75-HORSE-POWER BOILER.
F. M. HUGHSON,
ROANOKE, VA.

FOR SALE—MACHINERY
IN 75-BBL. UP-TO-DATE MILL
LIBERTY MILLS,
ROANOKE, VA.

ENAMELED LINED TANKS.
12 tanks, 4-30" rings x 8' dia., 3500 gals.
2 tanks, 5' high x 8' dia., 1800 gals.
2 tanks, 3-3' rings x 9½' dia., 4743 gals.
2 tanks, 3-¾' rings x 9½' dia., 6634 gals.
2 tanks, 3-¾' rings x 8½' dia., 4247 gals.
Chas. S. Jacobowitz, 1382 Niagara St., Buffalo, N. Y.

FOR SALE.—One Burroughs adding machine. Box No. 1443, Atlanta, Ga.

FOR SALE.—Victor screw door safe. Box 1443, Atlanta, Ga.

MACHINERY FOR SALE.
One 5-ft. Trevor jointer, one bolter. E. W. Menefee, Raymond, Ga.

FOR SALE.—One 3 H. P. General Electric single-phase motor, 110 v., 60-cycle, 1200 R. P. M.; perfect. For quick sale, \$110. Frederick Dorn, 216 Polk St., Tampa, Fla.

FOR SALE.—Horizontal storage tanks, capacities 9000 to 21,000 gallons, our specialty. Prompt shipment, in some cases immediate. Sharpville Boiler Works Co., Sharpville, Pa.

FOR SALE.—One 50 H. P. Metz & Weiss oil engine at a bargain. Used very little. Reason for selling, not large enough. This engine is in A-1 running condition. Mebane Milling Company, Mebane, N. C.

FOR SALE.—One 55-inch Sturdevant double exhaust or shavings fan, good order; 1 set two-finger grate bars, 5 feet long, nearly new. Prescott Stave & Heading Co., Saratoga, Tex.

FOR SALE.—Four-ton ice-making machinery, "York" compressor, coils, tank, cans and 25 H. P. De La Vergne oil engine. Write Apalachee Packing Co., Apalachicola, Fla.

GASOLINE TRACTOR AND DUMP WAGONS FOR SALE.—60 H. P. Pioneer 4-cyl. wagons with dump body, capacity 4 yards, in good shape; 4 Gallion wagons with dump body, capacity 4 yards; wagons good, bodies need overhauling. An ideal outfit for mining or lumber camp, road builders or farmers. Entire outfit for \$1650. F. L. Wilson, 601 Main Street, Lynchburg, Va.

MACHINERY and SUPPLIES WANTED

WANTED.—Mills, plants, electric machinery, drykilns. We buy for cash f. o. b. shipping points. Our prices for old mills are the highest. Let us prove it. Meltreger Company, 1408 So. Blue Island Ave., Chicago, Ill.

PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS

More Southern Proposal Advertising is Printed In The Manufacturers Record Than In Any Other Paper

Bids close October 16, 1918.

PROPOSALS FOR COPPER CABLE AND Wire, Electrical Material, Ceiling Fans, Repair Parts for Cars, Window Glass, Galvanized Steel Chains, Asbestos, Flax and Rubber Packing, Rubber Tires, Silver Knives and Spoons, Scrub Brushes, Crayons, Buckskin Gloves, Marline, Rubber Hose, Sandpaper, Emery Cloth, Cheesecloth, Metal Polish, Excelsior, Ferro-manganese, Ferro-silicon, Lumber, and Copper Screening. Sealed proposals will be received at the office of the General Purchasing Officer, The Panama Canal, Washington, D. C., until 10:30 o'clock A. M. October 16, 1918, at which time they will be opened in public, for furnishing the above-mentioned articles. Blanks and information relating to this circular (1231) may be obtained from this office or the offices of the Assistant Purchasing Agent, 24 State Street, New York City; 606 Common Street, New Orleans, La.; and Fort Mason, San Francisco, Cal.; also from the United States Engineer Offices in the principal cities throughout the United States. A. L. FLINT, General Purchasing Officer.

Bids close October 11, 1918.

PROPOSALS FOR GASOLINE. Sealed proposals will be received at the office of the General Purchasing Officer, The Panama Canal, Washington, D. C., until 10:30 o'clock A. M. October 11, 1918, at which time they will be opened in public, for furnishing the above-mentioned article. Blanks and information relating to this circular (1232) may be obtained from this office or the offices of the Assistant Purchasing Agent, 24 State Street, New York City; 606 Common Street, New Orleans, La.; and Fort Mason, San Francisco, Cal.; also from the United States Engineer Offices in the principal cities throughout the United States. A. L. FLINT, General Purchasing Officer.

Bids close October 24, 1918.

PROPOSALS FOR TURBINES, PUMP Set, Feed Water Heater and Electric Light Plant. Office, Mississippi River Commission, 1st and 2d Districts, Custom-house, Memphis, Tenn. Sealed proposals will be received here until 11 A. M. October 24, 1918, and then opened, for furnishing turbines, pump set, feed water heater and electric-light plant for hydraulic grader No. 1820. Further information on application.

Bids close October 24, 1918.

TREASURY DEPARTMENT. Supervising Architect's Office, Washington, D. C., September 26, 1918. Sealed proposals will be opened in this office at 3 P. M. October 24, 1918, for mail conveying machinery in the United States courthouse and postoffice at Pittsburgh, Pa., in accordance with specification and drawing, copies of which may be obtained at this office in the discretion of the Supervising Architect. JAMES A. WETMORE, Acting Supervising Architect.

Bids close October 24, 1918.

PROPOSALS FOR BOILERS. Office, Mississippi River Commission, 1st and 2d Districts, Custom-house, Memphis, Tenn. Sealed proposals will be received here until 11 A. M. October 24, 1918, and then opened, for furnishing boilers for hydraulic grader No. 1820. Further information on application.

Bids close October 11, 1918.

\$30,000 6% Bonds

The Board of Bond Trustees for the Town of Moore Haven, De Soto County, Florida, will receive sealed bids until noon of the 11th day of October, 1918, for the purchase of \$30,000 bonds of the Town of Moore Haven, voted for to raise money to open and pave streets, and for water, sewerage and sanitation improvements in said town; bonds in sum of \$500 each, bearing interest at rate of 6 per cent. per annum, payable semi-annually, principal and interest payable in gold coin of the United States, at the office of the Treasurer of the Town of Moore Haven, or at such bank in New York city as shall be designated by the Town Council, and shall mature within 20 years from their date, interest coupons to be attached. A certified check in the sum of \$500 will be required with each bid, and the Board reserves the right to reject any or all bids.

BOARD OF BOND TRUSTEES.

C. C. KLUTTS,
Clerk Town Council.
Moore Haven, Florida.

Bids close October 14, 1918.

\$100,000 5% Bonds

Sampson County, North Carolina, will offer at auction sale, on Monday, October 14, 1918, at 12 M., one hundred thousand (\$100,000) Dollars Sampson County 5 Per Cent. Road Improvement Bonds. Bonds dated July 1, 1918; due July 1, 1938; interest coupons payable January 1 and July 1 each year. Two per cent. deposit required with all bids. Address all inquiries to

BUTLER & HERRING, Attys.,
Clinton, N. C.

PROPOSAL ADVERTISING INFORMATION

RATE: 25 cents per line per insertion.

PUBLICATION DAY: Thursday.

FORMS CLOSE 5 P. M. Tuesday. Copy received later cannot be published until issue of following week.

DAY LETTER: When too late to send copy by mail to reach us by 5 P. M. Tuesday, forward by day letter.

THE DAILY BULLETIN OF THE MANUFACTURERS RECORD:

Published every business day: gives information about the industrial, commercial and financial activities of the South and Southwest.

The Daily Bulletin can be used to advantage when copy cannot reach us in time for publication in the Manufacturers Record before bids are to be opened, or when daily publications are necessary to meet legal requirements.

The same rate applies—25 cents per line per insertion.

Bids close October 10, 1918.

\$85,000 5% Bonds

NOTICE OF SALE.

McCormick, S. C., Sept. 3, 1918.

Whereas McCormick County Commission for Permanent Highways, S. C., did on March 20, 1917, sell to The Hanchett Bond Company, Inc., of Chicago, Ill., the 5 per cent. coupon bonds of McCormick County of the par value of one hundred and seventy-five thousand (\$175,000) dollars, and the contract for the purchase of the said bonds was claimed to have been transferred and assumed by H. A. Kahler & Company of New York City, and the said purchasers paid for and the Commission delivered to them bonds of the par value of ninety thousand (\$90,000) dollars, and the purchasers have refused to comply with their contract of purchase for the balance of the said bonds, to-wit, bonds of the par value of eighty-five thousand (\$85,000) dollars;

Therefore, notice is hereby given that the said Commission will sell at the risk of the former purchaser the balance of the said bonds of McCormick County, to-wit, bonds of the par value of eighty-five thousand (\$85,000) dollars on the 10th day of October, 1918.

The Commission will receive sealed bid or bids by personal representatives. In case of a bid in person the bidder will be allowed to appear before the Commission and state his bid. The bids will be opened at one o'clock P. M. on the 10th day of October, 1918.

The bonds bear date April 2, 1917, and are in denominations of one thousand (\$1000) dollars each, and bear interest at 5 per cent., payable semi-annually on the 2d day of April and the 2d day of October each year, with the interest coupons attached. The principal of the said bonds will be due and payable in accordance with the following schedule:

April 2, 1931.....	\$ 5,000.00
April 2, 1932.....	10,000.00
April 2, 1933.....	10,000.00
April 2, 1934.....	10,000.00
April 2, 1935.....	10,000.00
April 2, 1936.....	10,000.00
April 2, 1937.....	10,000.00
April 2, 1938.....	10,000.00
April 2, 1939.....	10,000.00

Years 21.....\$85,000.00
All past due coupons will be detached and cancelled.

Bidders are required to deposit a certified check to the amount of 5 per cent. of the bonds covered by their respective bids, which check shall be payable to J. J. Dorn, Chairman of the McCormick County Commission for Permanent Highway, and shall be a guarantee of full compliance with the bid submitted, and shall be considered liquidated damages in the event of a failure to comply with the terms of the bid.

The Commission reserves the right to reject any and all bids that they may deem for the best interest of the county to do so. If no bid is received at or above the par value of the said bonds, the Commission at the same time and place will consider bids for the said bonds bearing a rate of 6 per cent., the other terms and conditions to be the same. All bids at the 6 per cent. rate should be accompanied by a bid at the 5 per cent. rate.

Financial Statement of McCormick County.
Assessed value.....\$3,750,000.00
Bonded indebtedness.....90,000.00

Address all bids to John L. Kennedy, Secretary of the McCormick County Commission for Permanent Highways, and mark the same "Bids for bonds."

By order of the McCormick County Commission for Permanent Highway.

By J. J. DORN,
Chairman.

Bids close October 7, 1918.

\$10,000 5½% Bonds

Beaufort Township, Carteret County, North Carolina, offers for sale Ten Thousand Dollars in road bonds. Bonds maturing twenty years from date, bearing 5½ per cent. interest, payable semi-annually. Bids will be received at office of Register of Deeds, Clerk to the Board Commissioners, up to 12 M. o'clock October 7, 1918. Each bid must be accom-

panied by certified check in amount 5 per cent. of issue. Right reserved to reject any and all bids. Detail information on application to

J. F. MORRIS,
Clerk to Board,
Beaufort, N. C.

Bids close October 8, 1918.

Notice to Contractors and Pump Manufacturers

MUSCATINE-LOUISA DRAINAGE DISTRICT NO. 13.

Sealed bids will be received until 1 o'clock P. M. October 8, 1918, by the Muscatine-Louisia Drainage District No. 13, at the office of the County Auditor of Muscatine County, Muscatine, Iowa, for a steam-driven pumping plant, complete, containing one each 36" and 24" double suction centrifugal pumps. Bids will also be received at the same time and place for building to house said plant.

For further information address the Engineers, Elliott & Harman Engineering Co., Peoria, Illinois.

Dragline Work To

600,000 yards of good drag line work let as a whole or in 100,000-yd. lots to commence work on at once; payment made every week if desired.

T. C. M. & C. Co.,
531 Mayo Bldg., Tulsa, Okla.

Bids close October 7, 1918.

Freight Cars

Greenwood, Miss. On October 7, 1918, Board of Supervisors of Leflore County, Mississippi, proposes to purchase 30 (or less) flat or gondola cars for hauling gravel.

A. R. BEW,
ELI ABBOTT, Highway Engineer.

Electric Light Improvement

Belhaven, Miss. Sealed proposals, addressed to the Board of Aldermen of Belhaven, Miss., will be received at the Mayor's office at Belhaven up to 8:30 P. M. on Tuesday, October 8, 1918, for furnishing and installing the following:

One 100 horse-power Crude Oil Engine and appurtenances.

One 50 K. V. A. engine type, 220-volt Alternator with exciter and switchboard.

One Power-house.

Plans and specifications are on file at the Town Clerk.

Proposals will be publicly opened in presence of those interested, but the Board reserves the right to reject any and all bids.

Certified check for 5 per cent. of the bid is to accompany the formal proposal.

By order of the Board.

N. B. MARINER, Mayor;

W. W. CUTHRELL, Clerk,
Belhaven, Miss.

Engineer: WM. M. PLATT,
Durham, N. C.

To Our Advertisers

We Ask Your Co-operation

Owing to the labor shortage and the uncertainty of the mails at this time, we ask your co-operation in sending in advertising copy and cuts. It is our aim to give you the best service possible—submitting proofs and making changes whenever requested—but due to the unusual conditions to-day, it is necessary for us to strictly observe the following "Closing-down Dates."

When proofs of advertisements are required, copy and cuts must be in our hands two weeks in advance of date of publication and approved proof back one week in advance at the latest.

When proofs of advertisements are not required, copy and cuts must be in our hands one week in advance of date of publication.

Advertisers are requested to observe the necessity of having copy in our hands in ample time as stated above, to the end that advertisements may always receive proper classifications and be inserted in the issue for which they are intended.

MANUFACTURERS RECORD,
BALTIMORE, MD.

Published Every Thursday

OUTLINE OF CARDING MACHINE DRIVES

Condenser Drive:

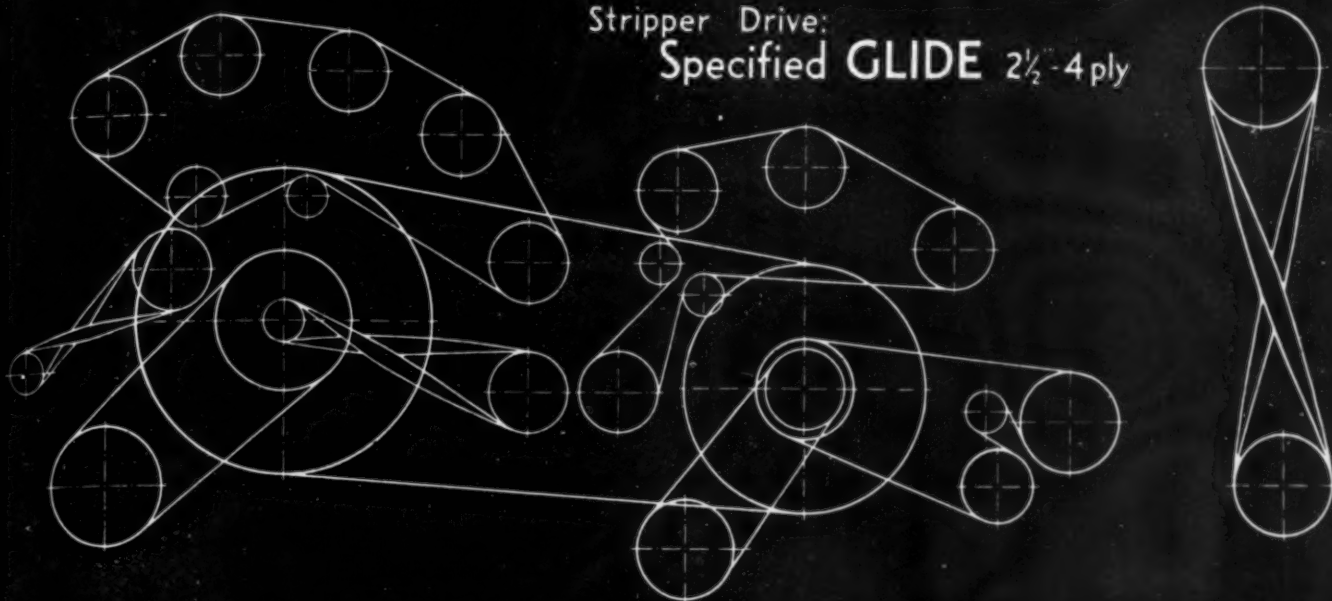
Main pulley 36" - 34 R.P.M.

Driven pulley 10" - Centers 4'

Specified **GLIDE** 3-4 ply

Stripper Drive:

Specified **GLIDE** 2½-4 ply



Those Carding-Machine Drives and the G. T. M.

It all started with the condenser drive on the carding machine—small, but the most amazing belt-devourer in the mill. After trying cheap belts, the most expensive were bought—both caused trouble and in the long run cost too much. The G. T. M.—Goodyear Technical Man—came, told about the Goodyear plan of plant analysis—of studying each drive and prescribing the proper belt. They put the condenser drive up to him. His service was free, and something had to be done.

What the G. T. M. Did—He studied that drive. He noted that oil from the cards dripped on the belt—that two flanged idler-pulleys, controlled by the machine operator, were used to reduce extreme slippage in starting—that the driving pulley was 36 inches, running at 34 r.p.m.—that the driven pulley was only 10 inches—the horsepower 10. He put on the Goodyear Belt designed for just these conditions—the Glide—put up a small metal guard to reduce the oil-dripping and *took off the idlers*.

It Worked—Production on that machine increased 30 per cent. After four months the belt had never been tightened or touched in any way and was still maintaining the 30 per cent increase. Its predecessors wore out in less time and required two or three tightenings. The company ordered similar belts for other plants. They had the G. T. M. make an analysis of all their drives—and followed his recommendations. Their belting costs are going down—and production up.

Try It—Ask for a G. T. M. to analyze your drives. Then test his work by using the Goodyear Belt prescribed for your worst belt-devourer. The results you get will be our compensation, for we believe that they will bring orders for belting other drives of yours according to the recommendations of the G. T. M.'s plant analysis.

THE GOODYEAR TIRE & RUBBER COMPANY
AKRON, OHIO

BELTING · PACKING HOSE · VALVES
GOODYEAR
AKRON

Look Beyond the Dollar to 12,000,000 Who Are Enslaved

There are four million young women working in the ammunition factories in England. They are turning out more cartridges every day than the whole of England turned out in a year at the beginning of the war.

These young women, including the wealthiest in the land, reared in luxury, and well educated, are not working for the money that is in it. The nation has long passed that selfish mark. Its women are working *with all their might* to protect themselves from the barbarians of Germany—working to save themselves from the fate of the Belgian and French women who have fallen into the hands of German soldiers.

It is because England knows what invasion means to the individual that *her women have put aside the frills and fripperies of fashion and easy life* and have gone to the factories to give real aid to the men who are at the front.

Here in the United States many persons have still got the dollar so close to their eyes that they are unable to see the fate that is in store for them—for their wives, their mothers, their daughters—if the Hun is not crushed on the Western front.

Until money becomes the mere by-product of all our war work—not the main object—this country will not have realized the fate that confronts it. Today—more than at any other time in your life, or in the life of the nation—we are fighting for our liberty.

You cannot buy liberty with money. If we gave to Germany all the wealth of the nation, all of our gold and silver, all precious things, all industrial equipment—if we mortgaged our producing powers for a century to come, it would not give us liberty—neither you nor your children then would be as safe from Germany as you are now.

Wherever Germany has conquered in this war she has enslaved the conquered peoples. Already 12,000,000 conquered men and women are working for her, as absolute slaves! Against the high wages of American workingmen she is pitting the work of these slaves—at seven cents a day.

If you are to remain freemen—if the innocent children of *your* home are not to become the playthings of the vermin-covered barbarians who are fast turning the whole world into a slaughter-house—Germany must be beaten, and *you* must do it.

*This space contributed to the
Winning of the War by
EDWIN B. STIMPSON CO.
Brooklyn, N. Y.*

Our
200
Cross
Wag

W. E.
N. E.
W. J.
John
Wm. J.
Earl W.
C. C. S.
Ernest
Mrs. A.
H. S.
J. G.
Jos. G.
W. Vog
Robt. J.
J. Gra
Arthur
C. C. F.
Robt. E.
Hog
John F.
Wm. F.
Thas.
John F.
F. T.
Erwin
Wm. O.
Adv. A.
S. S.
Geo. F.
A. O.
John E.

"WAR IS HELL"

This Historic Saying of One of Our Greatest
Civil War Generals Remains True Today

We Are All at War With the Kaiser
LET'S GIVE HIM HELL

THOSE WHO CAN'T FIGHT CAN AND MUST BUY

Fighting Fourth Bonds

Save to Buy--the Bonds

Buy to Save--the Nation

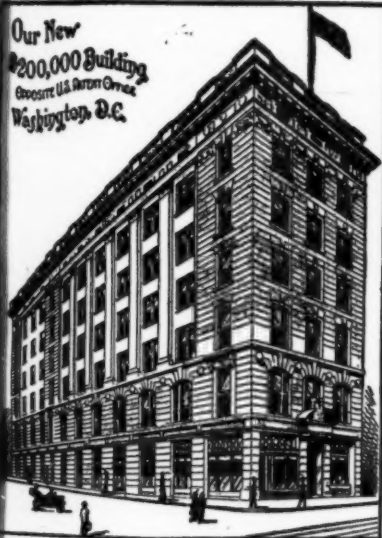
NOW! ALL TOGETHER! GIVE THE KAISER HELL!

Bond Subscriptions may be made at any of the Banks or with any Member of

THE FIGHTING FOURTH COMMITTEE

GEO. A. DRAPER, Chairman Liberty Loan Committee of Hopedale, Mass.

W. D. LEAHY, Chairman Liberty Loan Committee of Milford, Mass.



Our New
\$200,000 Building
Corner U.S. Army Office
Washington, D.C.

PATENTS That Protect and Pay

Send model or sketch for free opinion as to patentability. Our four books sent free to any address:

How To Obtain Patent, with one hundred mechanical movements. *What To Invent*, with valuable *List of Inventions Wanted*.

One Million Dollars Offered for Inventions. List of Patent Buyers and Millions in Trade-Marks. Patents secured by us advertised

FREE

WANTED NEW IDEAS

Send for LIST OF PATENT BUYERS who consult us when purchasing patents. Contains requests from MANUFACTURERS, MAIL-ORDER HOUSES and PROMOTERS for patents secured by us, and suggestions as to New Ideas they wish to purchase. We invite manufacturers and promoters to address our Sales Department regarding the purchase or leasing of a number of meritorious patents secured by us.

VICTOR J. EVANS & CO.

749 Ninth Street, WASHINGTON, D. C.

We have recently secured the following patents. A copy of any of these patents will be forwarded upon receipt of ten cents. Address all communications to Sales Dept.; Victor J. Evans & Co., Washington, D. C.

Wolach, fanning-mill attachment.
W. E. Evans, seat pad.
S. E. Derritt, lock.
W. J. Baumann, hot-water bottle.
John H. Frey, boring-tool holder.
Wm. J. Callaway, wave motor.
Earl Whitlow, automatic bundle carrier.
C. C. Strang, fishing-line reel.
Ernest H. West, glass casket.
Mrs. Minnie von Frieling, garment fastener.
E. S. Webster, rotary blower spark plug.
E. G. Watts, door-operating means.
E. G. Ware, pipe cleaner.
W. Vogel, sunken vessel marker.
Robt. J. Givens, protector for the timers.
G. Grabowski, car mover.
Arthur M. Wiswell, grain sampler.
E. C. Hudson, tractor.
Robt. E. Hester, kettle lid.
Hogan, railroad switch.
John Higginbotham, butter mold.
Wm. F. Snowden, headlamp control.
Chas. V. Steward, window screen.
John H. Yarbrough, baggage truck.
F. Thomas, table.
Erwin Smith, gate.
Wm. Oliver, baffle-plated coal burner.
Edw. A. Perk Van Lith, rotary engine.
S. Sato, collar fastener.
Geo. F. Ramm, clothes cabinet.
A. A. Olson, internal combustion engine.
O. Reynolds, baking pan.
John Koch et al., billiard-cue tip.

G. H. Knowles, internal combustion engine.
John I. Emm, auto signal.
John H. Klein, metallic rail tie and fastener.
V. P. Galle, flying machine.
Henry J. Mentink, harvester.
Chas. S. Hersh et al., non-refillable bottle.
C. G. Layton, trap.
John Greutmann, improved wagon jack.
M. Fitzgerald, street indicator.
H. Butler, spike puller.
G. M. Cagle, rotary scales.
Wm. Collette, auto signal.
Walter E. Emery, improved nut lock.
T. Masuda, bean harvester.
E. V. McCulloch, sanding device.
Chas. Albrecht, door-operating mechanism.
L. W. Nace, et al., miter box.
James B. Greene, demountable rim.
J. C. Gregory, finger shield.
G. J. Deines, matchbox.
S. R. Emerson, saw gauge.
H. N. Bigger, fruit picker.
N. R. Carrell, shoe nail.
Andrew J. Haun, garment supporter.
John H. Holmes, mechanical dag waver.
A. Ceretti, diving armor.
Jos. M. Jordan, Jr., camera attachment.
E. N. King, switch rail.
Wm. H. H. Griffin, ring.
A. U. Mershon, vending machine.
A. A. Gwaltney, cotton separator.
C. E. Lloyd, mechanism for transmitting power.

L. H. Clark, apron.
Geo. Blohm, cotton cultivator.
J. R. Cunningham, bag-filling apparatus.
F. C. Lorence, plant forcer.
John H. Gilbert, staple.
J. O. Grady, demountable auto rim.
John C. Grice, incubator.
Robt. Grant, transmission gearing.
Robt. Dixon, plow.
F. A. Bollinger, train-controlling apparatus.
La Ka Cheung, polishing machine.
A. B. Cook, folding bed.
Geo. R. Cope, breast strap.
C. B. Bickel, fastening device.
Louis Berk, wheel-pulling jack.
W. T. Kjelland, burglar alarm.
John F. Brooks, sanitary hen's nest.
G. E. LeClair, folding bed.
L. M. Bencil, telephone crossarm.
Spencer Bickerton, card holder.
Spencer Bickerton, stamp book holder.
E. A. Wentworth, roofing.
J. F. Berry, internal combustion engine.
Merrill Pepper, airplane starter.
C. Pinkney, tobacco pipe.
Wm. N. Pierce, folding coat hanger.
Wm. F. McMonagel, dipper.
V. E. Thomas, rim.
John W. Sprinkle, musical device.
A. Sperduti, farm tractor.
J. G. Rees, rail fastener.
V. L. Robertson, automobile extricator.
W. M. Pulver et al., beet-topping machine.
T. H. Monteith, wire-stretching clip.

Aaron Jedel, frame-filling and carton-loading machine.
S. J. Myers, wire hook.
Louis H. Ankovitz, umbrella holder.
J. V. Stansell, fender for plow.
L. C. Bonelli, wrench.
A. W. Fruness, current deflector.
A. Pinkos, fruit gatherer.
R. T. Rogers, collar.
A. B. Shobar, chisel.
Lewis M. Rader et al., cooler.
F. W. Miller, fountain.
G. A. Miller, sewing awl.
A. St. Clair Garman, bedstead.
Oscar H. Graveline, musical toy.
John C. Nichols, horse-collar pad.
C. A. Parrott, engine crank.
John C. Peifer, coop.
S. Kamowski, motion-picture apparatus.
H. L. Riley, toy.
A. J. Campbell, power multiplying mechanism.
E. N. Gower, brake.
R. A. Reed, focusing device.
Edward C. McGuffey, ratchet wrench.
D. J. Lassiter, rope clamp.
J. J. Kunz, running-board support.
W. M. Severance, garment hanger.
B. F. Malott, rail joint.
J. E. Johannessen, anchor.
Lewis Harris, tires.
G. C. Starcher, fruit-slicing machine.
J. D. Silvis, automobile signal.
C. H. Swain, trap.
W. I. Clayton, cold-drawn dies.

Special Advertisements of General Interest.

COAL LEASE FOR SALE

Valuable lease for sale on L. & N. R. R. in Hazard Coal Field of Eastern Kentucky. One thousand (1000) acres with three workable seams; No. 4 seam is 60" thick and just tippable height, No. 6 seam 42" thick and No. 7 seam 60" thick. Royalty to owner of 10 cents per ton. Railroad one mile.

Sixteen hundred acres coal lease within twelve miles of above, with four workable seams from 42" up to 72" thick. Railroad one-half mile, timber, camp site and other concessions.

Will sell to only reliable parties who will put in operation within one year. Address C. E. Carlin, Lock Box No. 508, Hazard, Ky., Perry County.

PUBLIC SALE OF KENTUCKY COAL LANDS

I will sell at public auction at Lexington, Ky., on Monday, October 14, 1918, the coal rights in 4,500 acres of land located in Lee and Owsley Counties, Ky. These lands contain a fine quality of coal ranging in thickness from 40 to 60 inches and have good railroad facilities.

For full information, address:

R. J. COLBERT, Master Commissioner, Lexington, Ky.

I Am Public Opinion



All men fear me!

I declare that Uncle Sam shall not go to his knees to beg you to buy his bonds. That is no position for a fighting man. But if you have the money to buy and do not buy, I will make this No Man's Land for you!

I will judge you not by an allegiance expressed in mere words.

I will judge you not by your mad cheers as our boys march away to whatever fate may have in store for them.

I will judge you not by the warmth of the tears you shed over the lists of the dead and the injured that come to us from time to time.

I will judge you not by your uncovered head and solemn mien as our maimed in battle return to our shores for loving care.

But, as wise as I am just, I will judge you by the material aid you give to the fighting men who are facing death that you may live and move and have your being in a world made safe.

I warn you—don't talk patriotism over here unless your money is talking victory Over There.

I am public opinion!

As I judge, all men stand or fall!

Buy U. S. Gov't Bonds Fourth Liberty Loan

Contributed through
Division of Advertising



United States Gov't Comm.
on Public Information

This space contributed for the Winning of the War by

AMERICAN TELEPHONE & TELEGRAPH CO.
New York

Woodbine, N.J.

has two brick buildings suitable for manufacturing purposes, one containing about 13,000 square feet of floor space, the other about 20,000 square feet. Both located a few hundred feet of the Pennsylvania R. R. Station, which is in the heart of the town. Electric power and steam heat. Liberal inducements to proper parties. For further information write to

Board of Trade

FOR SALE AT A GREAT SACRIFICE
Two manufacturing plants—one at Buffalo, New York, and one at Racine, Wisconsin, each containing about 150,000 sq. ft. of floor space. Adaptable for wood or iron work. Fully equipped with sprinklers, steam power, wood and iron-working machines. Racine plant has large foundry fully equipped. Can give immediate possession. If interested, communicate with

M. H. MURPHY

Manitowoc,

Wisconsin

We are Dealers in Chestnut POLES And POSTS

Yards on L. & N. and T. C. R. R.
C. E. NORTHRUP & SON
GALLATIN, TENN.

FOR SALE

Railway specialty manufacturing business (Now Government work), established 20 years. Factory in Chicago. Good financial standing. Can be moved to other location.

Address SHERMAN BARBER
2814 S. Wabash Ave. Chicago

Manufacturing Plant in Cincinnati switching limits on Southern R. R. siding, from on Ohio River, main building 66x206 ft., 3 stories, 13, 12 and 11 ft. ceilings, building addition 50x66 ft., 1-story buildings additional, approx. 12,500 sq. ft.; suitable for most any manufacturing purposes; good labor district.
Steel Frame Building 81'x23', with two each 30-ton capacity 70"-2" span 230-volt electric traveling cranes. Sprague (6-ton, D. C., 220-volt) Electric Hoist. 45' and 67', Callian, many others.
Pressure Blowers—Connorsville Blower, 24 cu. ft. per rev. capacity, condition like many others. Open Tank, 7900 gals. capacity, 2' 2" dia. Closed Tank, 4000 capacity, built of sections bolted together.
Locomotive Crane, Link-Belt Electric, 220-volt, 3-phase, 60-cycle, A. C., 15-ton cap. boom; equal to new.
Lincoln Planers, one 16'x6'x4'—4 heads; two 14'x6'—5'x4'—4 heads.
Large Lathe, 64"x30", back geared power feed, 6" raising blocks.
Smokestacks, 30" to 54". Molding Machines—Stearns & Adams squeezers, Tabor roller, Tabor power squeezer and pattern drawing for flask 14"x16".
Exhaust Blowers, 30", 45", 50", 60" double, many sizes, single. Ventilating Fans, 40", 60" disc type.
Sturtevant Cupola and Forge Blowers, volume blowers.
Wind Pipe, 15" heavy black and galvanized.
Compressors—Two 10x9 Ingersoll-Rand, one 6x6 vertical Curtis, one 10x8 straight line (known make), 4-ft. flywheel; one 8x8 Marsh, one Berry two-stage, 225-ft. cap. belted. The following steam driven: Two 14x30x30, one 12"x24"x30" low pressure one 12x12x12 and one 16x18x18 Ingersoll, one 10x8x10 Battle Creek.
Air Receivers, high pressure, 3x6 ft. 2-4x8 ft., 1-2' 6"x10 ft., 1-4'x6', 1-2'x5', 1-1'x3' 1-30"x5', 1-30"x8'.
Core Machines. 1—Wadsworth for round cores, 3/4" to 3". 1—Wadsworth without steam engine, 7x8 horizontal, automatic, condition first-class.
Drag Line Buckets, 4, capacity each 1/2 yd.
Brass Melting Furnaces, new, tilting and rotary (barrel) types.
Gas Engines, 5-10-15-20 H. P.; gasoline engine, 2 H. P.; St. Marys oil engine, 30 H. P. Steel Pipe, special flanged both ends, 56 pcs. 16 ft. long, 5" O. D., 4 11-16" inside diam. Bronze Pumps for brine or acids, with pressure by-passes. 1-3/4" and 1-1/2" connections, both motor driven; good for oil pumps, pressure up to 60 lbs.
Motors—1/2, 1, 2, 3 H. P.; D. C. and A. C., 110-220-volt, one and three phase, 60-cycle. Cranes, hand traveling, 2-27' 9" span, 10-ton; 3-31' 3/4" span, 5-ton, with trolley hoist; 2-24" span, 1 and 2-ton; 1-26' 3" span, 3-ton; 1-3-ton all steel Northern 20' swing, 20' under job.
Trolleys, 2-6-ton, geared for 24" I-beam; 3 plain roller bearing for 12" I-beam; 1 for 6" I-beam.
Hoists, 1 each 2, 3, 5, 8-ton chain hoists; 1—Sprague Electric, 6-ton, 23' lift, 220-volt, D. C. (no trolley); 1—Yale & Towne 5-ton hand crane, 22' 6" span, with 5-ton chain hoist, 220-volt, 3-phase, 60-cycle, 22' lift; like new.

THE CLIFTON-PRATT CO. Cincinnati, O.

STAINLESS STEEL

A steel which will not corrode or rust, covered by patents owned by the
AMERICAN STAINLESS STEEL CO.

1541 Cliver Building

Pittsburgh, Pa.

Original Licensees:

Firth-Sterling Steel Co.

Bethlehem Steel Co.

Crucible Steel Co. of America.

Washington Steel & Ordnance Co.

Carpenter Steel Co.

Haynes & Son.

WANTED

Mechanical Engineer

To assume management of machine shop. Salary and percentage of profit arrangement.

Address

STRATTON & BRAGG
MACHINE SHOPS
Petersburg, Virginia

SECOND-HAND BAGS FOR SALE

75,000 first-class second-hand bags, same for 15c apiece f. o. b. Roanoke. Write or wire. Will be sold immediately.

Roanoke Scrap Iron & Metal Co.
Box 611 Roanoke, Va.

We Make a Specialty of Dismantling

Old plants of every description, such as mills, electric-light plants, etc. Our work is spot cash. Advise us what you have to offer.

THE PIEDMONT IRON & METAL CO.
BALTIMORE, MD.

WANTED STEEL BUILDING

Good strong second-hand Steel Building about 70x160. Suitable for foundry, 5-ton crane capacity. Address

Crescent Foundry Co.
110 Browns Race Rochester, N. Y.

FOR SALE

One Structural Steel Boiler House 30 feet wide, 80 feet long and 24 ft. high.

Alabama City, Gadsden & Attalla Ry. Co.
GADSDEN, ALA.

Machinery, Equipment and Supplies WANTED

We Are In the Market For the Following Equipment NEW OR USED

60-ft. ten-ton Electric Crane. Punch, 38"
42" throat, one-inch hole in one-inch
material. Bulldozer.

NASHVILLE BRIDGE COMPANY
NASHVILLE, TENN.

WANTED

HOISTING ENGINE

Carrying three thousand feet wire rope;
cylinders at least ten by ten; strong brake.

Address: BOX A-8

Care of Manufacturers Record, Baltimore, Md.

WANTED: TURBO-GENERATOR

One steam Turbo-Generator, 1000 K. W., 2-
Phase, 2300 Volts, 60 Cycles. State if you can
furnish switchboard accessories, including
panel; also state name of maker, how long
used, present condition and any information
as to other accessory equipment.

A-11

Care of Manufacturers Record, Baltimore, Md.

WANTED

Good used Steel Storage and Pressure
Tanks, also wood tanks, all descriptions.
Give detailed description and price in first
letter.

NATIONAL PRODUCTS CO.

EAST LIVERPOOL, OHIO

WANTED

LIME KILNS

Anyone having steel shells for four verti-
cal lime kilns please send full descrip-
tion and price to

A-13

Care of Manufacturers Record, Baltimore, Md.

WANTED

SMOKE STACKS

Two boiler rings or smoke stacks, 60 to 65
ft. each, 48 to 52 in. in diameter, 3-16 to 5-16
in. thick, new or second-hand.

KILBY CAR & FOUNDRY CO.
ANNISTON, ALA.

WANTED

Second-Hand Pumping Plant

for irrigation purposes. One 36-inch Centri-
fugal Double-Suction Pump, lift 30 to 35
feet; 1 400 H. P. Corliss Engine; 2 200 H. P.
Water-Tube Boilers. Complete plant pre-
ferred, but solicit description and quotations
on single items.

Address Box 877 Lake Charles, La

WANTED

1000 tons of 60-lb. Relaying Rails, for
Southern delivery. Prompt shipment essen-
tial.

The Isaac Joseph Iron Co.

525 Reading Road Cincinnati, O

WANTED

One or Two

CREOSOTING CYLINDERS

about 5' 6" inside diameter by 40 to 60' long.
Send description and photographs.

H. B. BEAL

512 1st Natl. Bank Bldg. Newport News, Va

WANTED

To rent, with the privilege of buying, Drag-
line Scraper, 1½ to 2½-yd. bucket; also Stiff-
Leg Derrick on rollers or trucks, and an Erie
Steam Shovel with long boom or small re-
volving shovel of some other make. Will
have 12 months' work for same and will pos-
sibly buy the machines after they are tried
out. Don't want anything but good shovels,
and near central Oklahoma.

TULSA COAL MINING & CONTRACTING CO., Tulsa, Okla.

WANTED

BOILER AND ENGINE

One Vertical Hoisting Engine Boiler;
heavy construction, good for 125 lbs. pres-
sure in Pennsylvania; diameter 52" to 54".
Also 10 or 12 horse-power Stationary Steam
Engine.

State full details and price.
JOS. E. THROPP, Everett, Pa.

FIRE PUMP

WANTED

To purchase one second-hand Fire Pump,
minimum capacity 500 gallons per minute,
which will pass underwriters' inspection.
Name lowest cash price, condition and where
located.

COLUMBIA CLAY COMPANY
Box 172 COLUMBIA, S. C.

WANTED ELECTRIC MOTORS

SECOND HAND WILL PAY BIG PRICES

ALTERNATING and DIRECT CURRENT from ¼ to 500 Horse Power.

1-2-3 phase ALTERNATING and 220 Volt DIRECT CURRENT

What Have You To Offer?

Send list with prices. Quick Action. If interested will mail check.

MONARCH ELEC. MOTOR CO.

Morris Benjamin, Prop.

212 Centre St.

NEW YORK CITY

CORRUGATED

SHEET IRON

WANTED

ALSO

I-BEAMS

NATHAN KLEIN & CO.

WALKER AND CENTRE STS. N. Y. CITY

WE ARE IN THE MARKET
FOR

1000 Tons Relayers
12-lb. to 35-lb.

What size have you to offer?

KEYSTONE PIPE & SUPPLY
COMPANY

BUTLER, PENNSYLVANIA

SADDLE TANK

LOCOMOTIVE WANTED

1-42" guage saddle tank
locomotive from 16 to
20 tons wanted. Must
be in good condition.
Quote prices and give
specifications. Address

The J. G. Tilley Co., Inc.
BRISTOL, VA.

CRUSHERS

WANTED

Three No. 5 or similar Champion Crushers,
with manganese jaws.

National Products Co.
East Liverpool, O.

CAN YOU MAKE CASTINGS?

If so, Let Our Readers Know it
through an advertisement in the

Southern Shops Seeking Contract Work

Department of the

MANUFACTURERS RECORD

The Columbus Iron Works Co., Columbus, Ga., wrote us a short time ago, as follows:

"We are pleased to advise that since running our ad. in 'Southern
Shops Seeking Contract Work' department we have all the work
we can take care of for the next six months. It certainly pays to
advertise."

If your plant is not running at full capacity, an advertisement in this department of the MANUFACTURERS RECORD outlin-
ing your special facilities will put you in line of securing some of the profitable work which foundries and machine
shops in other parts of the country are compelled to sublet because of the greatly overcrowded condition now prevailing.

In these times it is a vital economy of war to keep your plant operating on a 100% capacity schedule, and an advertise-
ment in the MANUFACTURERS RECORD may bridge the gap between your present production and your possible production.
Try it.

Bargains in Machinery and Supplies.

STEEL STORAGE TANKS

We are still in a position to make almost immediate shipment of 1000, 3000, 5000, 7500, 8000, 9000, 10,000, 12,000, 15,000 and 20,000-gallon Tanks, as we have the stock on hand at the mill.

SPECIAL: 32 STEEL TANKS

capacity 4300 gallons, 8' 8" dia. x 9' 6" high, 3/16" shell, 3/16" heads, with manhole and four 2" pipe flanges.

We can also offer prompt shipment on Tanks built to your specifications.

STANDARD TANK CO.

15 Park Row New York, N. Y.

TANK FOR SALE

Steel Storage Tank, circular, flat bottom, open top, 12' diameter, 10' high, made of 1/4" plate, steam coil in bottom, in excellent condition, practically new.

RELIAANCE EQUIPMENT CO
MOBILE, ALA.

STEEL TANKS

1-54" diam. x 19'0".
1-36" diam. x 20'0".
1-36" diam. x 28'6".
1-60" diam. x 30'0".

HENRY POTTS & COMPANY

650 Real Estate Trust Building PHILA.

10,000 Gallon Cyprus Tank with 50 ft. steel structure CHEAP.

NATHAN KLEIN & CO.

208 Centre Street NEW YORK

TANK FOR SALE

One tank, inside measurements 24 in. wide, 36 in. deep and 72 in. long, with lid, and with about 60 feet of 3-in. pipe; one automatic valve, 3 in., and one stopcock, 2 in.

De Rivas & Harris Mfg. Co.

138-162 Willow Ave. New York, N. Y.

Air Compressor

Belt-driven Ingersoll-Rand Imperial, type No. 10, size 22x13x16, capacity 1190 cu. ft., complete with all fittings, together with 200 H. P. Westinghouse motor, 485 amp., 2200 volts, 3-phase, 25-cycle. Excellent condition. Immediate New York delivery.

ALPHA TRADING CO., Inc.

38 Park Row, NEW YORK
Phone—Cortlandt 3162

COMPRESSORS

1 McKiernan Duplex 2-Stage, 3000 ft. steam.
1 Ingersoll Compound Steam and Air, 2000 ft.
1 Ingersoll Compound Steam and Air, 1200 ft.
1 Ingersoll Duplex 2-Stage, 600 ft. steam.
1 Ingersoll Duplex 2-Stage, 500 ft. steam.
1 Ingersoll Duplex 2-Stage, 325 ft. steam.
Other sizes, belt and steam driven.

F. L. HOWLAND, 90 West St., New York

BLOWER FOR SALE

FAN AND COILS.—1 full-house, left-hand top horizontal, discharge New York Blower, 10 ft. high, complete with self-contained engine; also Heating Coils, containing approximately 5000 lineal feet of 1" pipe, all in good condition and subject to immediate shipment. Price \$1000.

OHIO MALLEABLE IRON CO.
COLUMBUS, OHIO

Crushers In Stock

One No. 3 Gates Gyratory; complete, fine shape.
One No. 7 1/2 Gates Gyratory; complete.
One No. 5 Gates Gyratory; complete.
One No. 3 Gates Gyratory; complete.
One 11"x23" Acme Jaw Crusher; fine shape.
One 10"x20" Acme Jaw Crusher; fine shape.
One 10"x20" Farrell Jaw Crusher; fine shape.
One 9"x16" Indiana Jaw Crusher on wheels.

CHAS. T. LEHMAN
BIRMINGHAM, ALA.

CRUSHER FOR SALE

Double Roll Crusher, suitable for coal, etc. Rolls 24" x 24" with steel spikes. Good second-hand condition \$400.00.

RELIAANCE EQUIPMENT CO
MOBILE, ALA.

DOUBLE QUICK BACKFILLERS FOR SALE

1-7-h. p. all steel frame \$300
3-5-h. p. 250 each

MOORE SIEG CONSTRUCTION CO.
Waterloo, Iowa

800,000 Corrugated Iron Fasteners FOR SALE

Ready to Ship. Send for Booklet.

McCOY IRON WORKS, INC.
Perth Amboy, N. J.

WALWORTH WELDED TUBE
RADIATORS
FOR STEAM 10 TO 50 FT. RADIATION
5 Cents Per Pound
THE HERFURTH ENGINE CO., Incorporated
Alexandria, Va.

FOR SALE

3 retorts or cylinders, 45 ft. long, 6 ft. diameter, 1/2 boiler plate, one detachable head, stand 125 lbs. pressure, 28-in. track inside. Lime or feed grinder, made by Sturtevant Co., French burr stones about 3 ft. diameter.

E. BEAN & SON COMPANY
JACKSONVILLE, FLA

FOR SALE

Duplex Steam Pump, 6x4x6.
Duplex Power Pump, 6x6, all bronze water end, copper tubular water condenser.
2-Copper Tanks, 3500 gals. capacity each.
1-Copper Tank, 2700 gals. capacity.
2-Copper Tanks, 4500 gals. capacity each.
Fairbanks-Morse Platform Scale, capacity 2500 lbs.

I. TRAGER CO. OHIO
CINCINNATI

Here's Your Chance to Secure One

Bayley Hot Blast

Consisting of three 7-section 1 1/4" pipe heater; 15,360 ft. pipe enclosed housing, 9' high, 21' long, 18" wide; steel plate fan, 14' high, 6' wide, bottom side up discharge, 7x6-ft. discharge, 8-ft. inlet, direct connected to 10-in. by 12-in. left-hand horizontal side disc crank slide-valve engine in A-1 condition.

If interested, make me your offer.

FRANK MILLNER

Iron and Steel Scrap
TRENTON, N. J.

FOR SALE

FIRST-CLASS CONDITION

1 80 H. P. Cole Steam Engine.
1 20 H. P. Cole Steam Engine.
1 Atlas Return Tubular Boiler, 60"x16", with fittings.
1 Schofield Return Tubular Boiler, 60"x16", with fittings.
1 Wellington Duplex Pump, 6x5 1/2 x6.

TOM HUSTON MFG. CO. Columbus, Ga.

Engine Lathe FOR SALE

38" x 16 1/2', heavy duty, triple geared, compound rest, with all regular equipment. Modern Tool.

MACHINERY MERCHANTS, Inc.

50 Church St., NEW YORK, N. Y.

Steam Shovels

1 Model 70 Bucyrus.
1 Model 60 Marion.
1 No. 9 Thew.
1 Erie, with extra boom and clamshell bucket.
1 Model 28 Marion.
1 Keystone Grader.
1 10-ton Steel Derrick, complete, with 3 1/4 x 10 D. C. D. D. Lidgerwood Engine and Boiler.
1 10x20 Acme Crusher, with elevator and screen.
1 1/2-yard Smith-Chicago Concrete Mixer, with engine and boiler on wheels.
A large quantity of small equipment and tools.

RALPH R. LEWIS CO.

538 Commercial Trust Co. Philadelphia, Pa.

SECOND HAND BRICK MACHINERY FOR SALE—Cheap for Cash

f. o. b. cars Slidell, La. Second-Hand Brick Machinery: Chambers No. 8 Pug Mill, Brick Machine, Automatic Cutter, all good condition. Address

SOUTHERN CREOSOTING CO., Ltd.
Slidell, La.

FOR SALE

One Newman 97 P. & M.
One Atlas Automatic Center-Crank 150 H. P.
One 50 to 60 H. P. Boiler, brick-set type
30 feet 2 1/2-16 Shaft and Hangers.
35 feet 2 3-16 Shaft and Hangers.
12 Wood and Steel Pulleys.
One 2-saw Power Feed Edger.
All together or separate.

THE VALLEY LUMBER CO., NEWSON

FOR SALE

1 Murray Special Tandem Corliss about 400 H. P.
1 Direct-connected Engine and Dynamo engine make, G. E., 600-light machine
For further information apply

ROYAL MILLS
CHARLESTON, S. C.

FOR SALE

One Auto Knitting Machine

And all accessories. Three pounds included. Has not been used to any extent. Was bought February, 1918. Will take for outfit. A guide goes with it. Write

A. L. SHANNON
BERLIN, ALA.

FOR SALE

FIRST-CLASS CONDITION

1 Planer, 24" Double Surfacers and M
1 Planer, 26" Double Surfacers.
1 Double-Spindle Router.
1 Smith Double-Head Tenoner.
1 Double Table Adjustable Belt Sander.
3 Wood Frame Rip Saws.
1 Double-Drum Sander.

TOM HUSTON MFG. CO. Columbus

MARINE BOILER FOR SALE

75-Horse-power Scotch Marine Boiler, 120 lbs. pressure. \$1250.

Strasburg Steam Flouring Mill
STRASBURG, VA.

It's Not Quite as Easy

to do good printing as it is to do bad printing, but it pays better in the satisfaction to customers and in self-respect.

We aim to do the *best* work.

The books, catalogues and periodicals that we print afford pleasing examples of the typographical art.

Let us submit prices on any work you may have in mind.

Fleet-McGinley Co.
PRINTERS
Baltimore, Maryland

Corliss Engines, Water Tube Boilers and Direct Connected Unit

DIRECT CONNECTED UNIT

- (1) Engine, Rice & Sargeant, Simple, Non-Condensing, 30x48", 750 H. P. Generator, Westinghouse, D. C., 10-pole, 550 V., 90 R. P. M., 500 K. W.

ENGINES

- (3) Allis-Corliss, Simple, Non-Condensing, 30x60".
(1) Huettelman & Kramer, cylinder 20x42, Right-hand Corliss Engine.

GENERATORS

- (3) Westinghouse, D. C., 4-pole, 550 V., 500 K. W.

LEATHER BELTS

- (3) 53", 140' long, Double Leather Belts.

BOILERS

- (8) Campbell & Zell Water Tube Boilers, 12 tubes high and 12 tubes wide, nominal rating 275 H. P. each; set in batteries of two each, steam pressure 150 lbs. each.
(1) Campbell & Zell Water Tube Boiler, 9 tubes high and 12 tubes wide, nominal rating 225 H. P., pressure 150 lbs.

PUMPS

- (3) Worthington Duplex Feed, 9"-5 1/4" x 10".
(1) Knowles Deep Well, 12"-7 1/4" x 36".
(1) Westinghouse 9 1/2" Air Pump.
(2) Centrifugal Circulating, Direct-driven, 12" Pumps, each driven by a 70 H. P. General Electric 550-volt direct-current motor, speed 500 R. P. M.
(2) Horizontal 13x8" Worthington Dry Vacuum Pumps, direct driven by a 12 H. P. General Electric 500-volt direct-current motor, speed 300 R. P. M.

MISCELLANEOUS

- One (1) Berryman Feed Water Heater, 5x17".
One (1) Locke Damper Regulator, complete with Damper Operating Mechanism.
One (1) 15-ton Traveling Crane, 70' span, with Hand-operated Bridge and Hoist.
Two (2) Perfection Oil Filters, 100-gallon capacity each.

BOSTON IRON & METAL CO.

PRATT and FREMONT STS. BALTIMORE, MD.

For Sale

- 3-72" x 16' Horizontal Boilers.
1-40-H. P. Donegan & Swift Upright Steam Engine.
Wood Wheel Making Machinery. (Send for list.)
1-600-H. P. Hoppes Feed Water Heater.
1-10 x 12 Worthington Triplex Pump.

The B. F. Goodrich Co.
Dept. 37 AKRON, O.

GENERATING UNIT FOR SALE

11x18" Buckeye Engine, direct connected to 50 K. W., 115-volt generator; first-class order.

Maryland Color Printing Company
Holliday and Hillen Sts. Baltimore Md

New Motors? New Ventilating Fans?
New Mine Locomotives? New Tanks?

I have them in Stock

HOWARD B. PAYNE
1003-1004 House Building Pittsburgh, Pa.

FOR SALE

The Knitting Machinery of a Modern Southern Mill

We are offering for sale all of the machinery in our plant, consisting of about 20 Wildman Knitting Machines and Sleviers; about 50 Sewing Machines, and the entire plant complete, equipped for making ladies' misses' and boys' union suits; also vests and pants. Machinery in operation, and can be inspected at any time. Address

SOUTHERN KNITTING MILL
Care Manufacturers Record BALTIMORE

Immediate Shipment

- 1-500 H. P., C. C., heavy-duty Corliss Engine; practically new.
2-Engines, 10 to 800 H. P.
2-Boilers, 60 to 500 H. P.
Send us your inquiries.

Ross Power Equipment Co.
INDIANAPOLIS, INDIANA

FOR SALE

- 1-Platt Iron Works Jet Condenser, size 18x30x24.
1-Cochrane Feed-Water Heater, 2500 H. P.

Crawford-Vaughn Boiler & Locomotive Works
Birmingham, Ala.

Heat Treating Furnaces FOR SALE

Two No. 25 Stewart, Oven-Type, Heat-Treating, Oil-Burning Furnaces; excellent condition. Price \$450 each, f. o. b. La Crosse, Wisconsin.

LA CROSSE TRACTOR CO., LA CROSSE, WIS.

FOR SALE

- One direct-current 125-volt 75 K. W. Western Electric Co. Generator, direct connected to Ideal Automatic Engine.
One direct-current 115 to 125-volt 35 K. W. Sprague Electric Co. Generator, direct connected to McEwen Automatic Engine.
One direct-current 125-volt 25 K. W. belted to Ideal Automatic Engine.
One 7 1/2 K. W. General Electric belted to vertical engine.
One 1 1/2-ton Remington Machine Co. Ice Machine, complete with condenser and all equipment. One power driven ice-cream freezer, one belted ice-chopping machine.

SIMMONS-BIGGS CO., Inc.
MEMPHIS, TENN.

MOTORS FOR SALE

- 2-Triumph direct-current Motors, each 230 volts, 50 H. P., 700 R. P. M. sliding base; double pole knife switch with fuse; also pulley with each motor. Good as new, used only few months.
Also 1-75 H. P. Westinghouse Motor, 220 volts, direct current, 1100 R. P. M., sliding rails, double pole knife switch with fuse; also pulley. All shunt wound.

Immediate Shipment. Attractive Prices.
Harrisburg Foundry & Machine Works
HARRISBURG, PA

IMMEDIATE SHIPMENT

- 1-9375 K. V. A., 2300-v., 60-cy., 3-ph. Westinghouse Turbo, with condenser and auxiliaries.
1-1500 K. W., 2300-v., 60-cy., 3-ph. Allis Turbo, with condenser.
1-781 K. V. A., 2400-v., 60-cy., 3-ph. Hor. Steam Turbo, with cond. and auxil.
1-312 K. V. A., 2300-v., 60-cy., 3-ph. Allis-Terry Turbo, with cond. and auxil. Used three months.
1-750 K. W., G. E. Vert., 2300-v., 480-v., 60-cy., 3-ph. Turbo.
1-125 K. V. A., 480-v., 60-cy., 3-ph. Westinghouse Non-Condensing Turbo.
1-400 K. W., 240-480-v., 60-cy., 3-ph., C. C. Engine Set.
1-300 K. W., G. E. (80 per cent. P. F.) 2300-v., 60-cy., 3-ph. Corliss Set.
1-550-750 K. W., 240-v., D. C., Allis C. C. Engine Set.
1-300 K. W., G. E., 250-v., D. C., Tand., C. C. Engine Set.
1-200-250 K. W., 240-v., C. C. Engine Set.
1-Complete Plant, consisting of six 500 H. P. Water-Tube Boilers, three 830 K. W., 25-cy., 370-v., G. E. Generators; three Surf. Conds. and Auxil.
20-H. R. T. Boilers, 60-150 H. P., 80 to 150 pounds.
10-Gas Engine Units, 50 K. W. to 800 K. W., A. C.
2-Oil Engine Units, 50 and 120 K. W., A. C.

ROSS POWER EQUIPMENT COMPANY
INDIANAPOLIS, INDIANA

FOR SALE

- 2-General Electric 1000-kw.

TRANSFORMERS

serial No. 542429 and No. 543530, Form B, Type W, 60 cycles, 3900/44000/2300 volts, single phase, oil and water cooled.

Logan County Light & Power Co.
No. 408 Main St. Logan, W. Va.

500-VOLT D. C. MOTORS

- 100 H. P. Westinghouse "M." speed 750.
50 H. P. General Elect. "MPH." speed 900.
4-50 H. P. General Elect. "MPH." speed 550.
7-35 H. P. General Elect. "MPH." speed 600.
4-25 H. P. General Elect. "MPH." speed 600.
8-15 H. P. General Elect. "MPH." speed 800.
2-10 H. P. General Elect. "MPH." speed 800.

"HONESTLY REBUILT"

Miller Owen Electric Company, Inc.
"Pittsburgh's Electrical Clearing House"
PITTSBURGH, PA

In Asheville Stock

New and second-hand single and three-phase Motors, sizes 1 H. P. to 7 1/2 H. P., 110, 220 and 440 volts.
We want to put these motors out on essential work.
Get our offer on the electrical equipment you wish to dispose of.

Piedmont
ELECTRIC CO.

Electrical Building
ASHEVILLE, N. C.

VERTICAL MOTORS FOR SALE

- 2-G. E., 50 H. P., 1800 R. P. M., 440-volt, 60-cycle, 3-phase, Vertical Form K Motors, each with no-voltage release compensator and overload relay. Practically new. Also large stock Motors and Generators.
V. M. NUSSBAUM & CO.
FT. WAYNE, INDIANA

Seamless Steel Tubing

New Lengths, 1 to 6 ft.
2000 pcs. 1" o. d.-12 to 16 ga., at 8c. per ft.
300 pcs. 3/4" o. d.-16 ga., at 6c. per ft.
500 pcs. 1/2" o. d.-16 ga., at 5c. per ft.
WALTER E. LUMMUS CO.
173 Milk Street BOSTON, MASS.

Equipment For Sale

Nos. 4 and 5 Champion Jaw Crushers, mounted or unmounted. Also other quarry equipment.

RALEIGH GRANITE COMPANY
NORFOLK, VA. RALEIGH, N. C.

"D. C. UNITS"

- 100 K. W., C. W., 125-volt, dir. con. Ames Engine; \$3500.
50 K. W., C. W., 125-volt, dir. con. Ames Engine; \$1200.

POWER MACHINERY EXCHANGE, INC.
1 Montgomery Street JERSEY CITY, N. J.

Electric Motors and Generators

A. C. 3-Phase, 60-Cycle Motors

H. P.	Make.	Volts.
300	G. E.	220/440
150	Whse.	2200
150	G. E.	440
150	G. E.	220
100	G. E.	550
75	G. E.	220
75	G. E.	220
75	Lincoln	220
75	Whse.	220/440
75	Whse.	2200
50	Whse.	220
50	G. E.	220
50	W. E.	220

*Vertical type.

D. C. Generators

K. W.	Make.	Volts.
75	Whse.	125
55	Pt. Wayne	230
50	C. & C.	250
40	G. E.	220
40	Fks. Mee.	220
30	G. E.	110

D. C. Motors

H. P.	Make.	Volts.
85	Whse.	500
65	Northern	550
60	G. E.	230

- 150 K. W. Stanley 2-phase, 60-cycle, 900 R. P. M. Generator.
2-15 K. W. Crocker-Wheeler, D. C. Generator Sets, direct connected to Nash vertical gas engines. Hardly used.
2-D. C. Hoist Motors, series wound, A., 75 H. P., 220-volt.
1000 Other Bargains.

NATHAN KLEIN & COMPANY
208 Centre Street New York

Selections from Our Stock

3-phase, 60-cycle Motors

Qn.	H. P.	Make	Volts	Type
1	15	Westinghouse	220	
1	15	Westgh. NEW	220	CS
1	20	Westgh. NEW	220	CS
2	20	Westinghouse	220	CS
1	30	Gen. Elec. Special		
42	20	Fairbanks-Morse	220/440	KBT
1	30	Gen. Elec. Slip		
		ring, intermittent duty, no controller	220	IM
		Controller with grids for above.		
3	25	Westgh. NEW	220	CS
9	25	Wagner	220/440	BP
2	30	Wagner	220	
1	35	Triumph	220/440	
1	40	Fairbanks-Morse	220	
1	50	Triumph	220	
1	50	Allis-Chalmers	220	
1	50	Westgh. NEW	440	CS
1	75	Westgh. NEW	440	CS
1	100	Allis-Chalmers	550	
1	100	General Electric	550	K
1	100	Gen. Elec. NEW	550	M
1	150	Gen. Elec. NEW	220	M

GEORGE SACHSENMAIER CO.

Office and Salesrooms, 141-43-45 N. Third
Warehouses and Shop, 928-30-32 N. Third
PHILADELPHIA

All kinds Motors and Generators in stock

Special for Quick Shipments

One 20x48 (240 h. p. at 100 lbs. steam) Putnam Poppet Valve Engine, with all fitting partly rebuilt; will be ready soon.....\$2,400.

One 150 kw., 3-phase, 60-cycle 220-volt 514 r.p.m. Westinghouse revolving armature alternator, with base, pulley rheostat, necessary excitation and switchboard; thoroughly rebuilt; immediate delivery.....\$1,500.

Send for Our Stock List

GEO. F. MOTTER'S SON

YORK, PENNA.

VENEER MILL EQUIPMENT For Sale

We are going to sell our (3) Smith-Mc & Schrier veneer saws, 15 sets of segment all drykiln equipment; (2) 100-horsepower Sinker-Davis boilers, which are practically new; (1) 125-horsepower Sinker-Davis engine, practically new; (1) 230-volt dynamo; (1) 6x7 upright engine, and other mill equipment. This machinery will be sold a whole or in part.
Diamond Veneer Co. Edinburg, Ind.

MOTORS and DYNAMOS For Sale or Rent

A. C. OR D. C., ANY SIZE
We repair and rebuild electrical machinery. Prompt service. Positive guarantees.

PAN ELECTRIC MFG. CO., 735 S. 4th St. ST. LOUIS

THE O'BRIEN MACHINERY CO.

ELECTRICAL EQUIPMENT FOR IMMEDIATE DELIVERY

MOTORS—Alternating Current.

3-Phase, 60-Cycle.	No. H. P.	Make.	Speed.
25 H. P. Wagner, slip ring, 220-440-v., 600 R. P. M.	1	10 Westinghouse	1700
300 H. P. Allis-Chalmers, slip ring, 220-440-v., 600 R. P. M. (NEW).	2	7 1/2 General Electric	1500
2-75 H. P. General Electric, 220-440-v., 900 R. P. M. (NEW).	2	5 Westinghouse	1300
2-75 H. P. General Electric, 220-440-v., 900 R. P. M. (NEW).	2	3 Triumph	1300
2-75 H. P. General Electric, 220-440-v., 900 R. P. M. (NEW).	2	3 Westinghouse	1350
2-75 H. P. General Electric, 220-440-v., 900 R. P. M. (NEW).	2	3 General Electric	1150

220-Volt, Direct Current.

No. H. P.	Make.	Speed.
1	65 General Electric	750
1	35 Fairbanks-Morse	600
1	15 General Electric	925
1	7 1/2 Electro Dynamic	500
2	5 Westinghouse	1300
2	4 Fairbanks-Morse	325
2	3 1/2 General Electric	725-1450

110-Volt, Direct Current.

No. H. P.	Make.	Speed.
1	65 General Electric	750
1	35 Fairbanks-Morse	600
1	15 General Electric	925
1	7 1/2 Electro Dynamic	500
2	5 Westinghouse	1300
2	4 Fairbanks-Morse	325
2	3 1/2 General Electric	725-1450

Direct Connected Units.

75 K. W., 250-volt Sprague, Ridgway engine.	75 K. W., 125-volt General Electric, Ames engine.	60 K. W., 250-volt Thompson Ryan, Ridgway engine.	25 K. W., 220-volt General Electric, Ball engine.
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OIL ENGINE SETS.

1-90 K. W., 220-volt Triumph, De La Vergne engine.	2-65 K. W., 220-volt Triumph, De La Vergne engine.
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MACHINE TOOLS.

A few desirable tools we have for immediate delivery.	50"x50"x12" Pond Planer, power raise to cross-rail.	4" Mueller Plain Radial Drill.	3" Pratt & Whitney Vertical Surface Grinders.	26"x48"x14" McCabe Double Spindle Lathe.	85"x18" Bement Lathe.
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Let us have your inquiries, as our stock is constantly changing.

THE O'BRIEN MACHINERY CO.
119 North Third Street PHILADELPHIA, PA.
Long Distance Bell Telephone, MARKET 2121 Cable Address, O'BRIEN, PHILADELPHIA

REBUILT MACHINERY

ALL IN STOCK

BOILERS: 2-72x18; 2-72x16; 2-66x16; 1-60x16; 1-54x14; 2-48x16; 2-48x14.

BOILER TUBES: 20,000 feet of 4-in.; 10,000 feet of 3 1/2-in.; 5000 feet of 3-in.

ENGINES: 14x16 Buckeye; 14x21 Lane & Bodley; 14x18 Chandler & Taylor; 12x30 Lane & Bodley Corliss; 12x18 Atlas; 11x13 Russell; 10x14 Chandler & Taylor; 9x12 new Nagle; 10x12 Erie; 9x14 Allfree; 7 1/2x14 Brownell.

MOTOR GENERATOR SET: 1-100 K. W. Morgan-Gardner, 250-volt, D. C. Generator, direct connected to a 150 K. V. A. General Electric 3-phase, 60-cycle, 2200-volt, 600 R. P. M. synchronous motor, with switchboards, instruments, etc.

GENERATORS—60-CYCLE: 175 K. W. Westinghouse, 3-phase, 2200-volt at 900 R. P. M.; 150 K. W. G. E., 3-phase, 220-volt at 600 R. P. M.; 85 K. W. Allis-Chalmers, single phase, 2200-volt at 900 R. P. M.; 90 K. V. A. Electric Machinery Company 3-phase, 2200-volt at 1200 R. P. M.; 75 K. W. Fairbanks-Morse, 240-volt, 900 R. P. M.

MOTORS—3-PHASE, 60-CYCLE: 150 H. P. new General Electric, 440-volt, 720 R. P. M.; 100 H. P. new General Electric, 440-volt, 720 R. P. M.; 100 H. P. new General Electric, 440-volt, 900 R. P. M.; 50 H. P. new General Electric, 220-volt, 900 R. P. M.; 50 H. P. new Allis-Chalmers, 440-volt, 900 R. P. M. (slip ring); 40, 30, 2-25 H. P., all new General Electric, 220-volt, 1200 R. P. M. Also other sizes.

MOTORS—D. C. 250 VOLTS: 100 H. P. Allis-Chalmers at 600 R. P. M.; 55 H. P. General Electric at 900 R. P. M.; 30 H. P. Northern at 600 R. P. M.; 2-25 H. P. Fischer at 500 R. P. M.; 1-20 H. P. Crocker-Wheeler at 750 R. P. M.; 15 H. P. Phoenix at 1750 R. P. M.; 10 H. P. Jantz & Leist at 800 R. P. M.; 3 H. P. at 1250 R. P. M., direct connected to iron-frame swing saw.

POWER PLANT MACHINERY AND ACCESSORIES

Send us your requirements

THE RANDLE MACHINERY CO.

1734 Powers St. Cincinnati, Ohio

NEW MOTORS

Immediate shipments from Atlanta Stock

One each 5, 7 1/2, 10, 25 and 30 H. P. General Electric 220 Volt 3-phase, 60 cycle motors Offered subject to prior sale.

Seeger-Walraven Co.

Machinery and Mill Supplies
38 W. Alabama Street
ATLANTA, GA.

FOR SALE—Electric Motors

We make a specialty of, and have the largest stock of SECOND HAND electric MOTORS and GENERATORS in America, and buy and sell, rent, exchange and repair electrical machinery of all kinds.

16th and Lincoln Streets, Chicago

FOR

WIN THE WAR SERVICE

AND IMMEDIATE DELIVERY, WE OFFER A No. 1 APPARATUS
PARTIAL LIST AS FOLLOWS

BOILERS

- 1-1400 H. P. Complete Boiler Plant, consisting of:
 - 4-350 H. P. Stirling, Class N, No. 16, 190 lbs. steam pressure, 150 degrees superheat Boilers, complete, with all piping, valves, breeching, heaters, pumps, etc.
 - 2-400 H. P. A. & T. B. & W. Steel Header, 175-lb., re-erection, triple riveted butt joint, with Green chain-grate stokers.
 - 1-557 H. P. Stirling Lap Seam Drum, 150-lb. allow.; perfect condition, hand fired.
 - 7-72-in. x 18-ft. triple riv., butt joint, 150-lb. allow., hand fired; stacks and all fittings.
 - 2-250 H. P. Heine, 150 lbs. allowance, Hand-Fired Boilers; first-class condition.

60-CYCLE UNITS

- 2-600 K. W. General Electric, 60-cycle, 3-phase, 2200-volt, R. F. Alt., dir. con. to H. D. cross-compound Corliss engine.

25-CYCLE UNITS

- 2-300 K. W. Westinghouse, 25-cy., 3-ph., 440-v., R. F. Alternator, dir. con. to cross-comp. Allis-Chalmers, heavy-duty, double-ported, double-eccentric engines.
- 1-350 K. W. Westinghouse, 25-cy., 3-ph., 660-v., R. F. Alternator, dir. con. to heavy-duty Ball automatic engine.
- 2-1000 K. V. A. Westinghouse, 25-cy., 3-ph., 440-v. Alternator, with cross-compound, heavy-duty Corliss engines.

DIRECT CURRENT UNITS

- 1-1600 K. W. General Electric, 350-v., D. C. Generator, direct connected to heavy-duty Cross-Compound Corliss Engine.

TURBINES

- 1-1000 K. W. (old rated actual capacity approximately 1500-1800 K. W.) Westinghouse Horizontal Condensing Turbo Alternator Unit, 60-cy., 3-ph., 2300-4490-v., 1800 R. P. M., complete, with surface condensers, piping, etc., to make complete installation.
- 1-3300 K. V. A. Westinghouse-Parsons Condensing Turbo Alternator, 80 per cent. P. F., 60-cy., 2200-v., 1200 R. P. M., complete, with condenser.
- 1-5000 K. W. Allis-Chalmers (New) Turbo Alternator, without condenser, 80 per cent. P. F., 60-cy., 3-ph., 2300-v.
- 1-1500 K. W. Westinghouse-Parsons Condensing Turbo Alternator (Old Rated), approximately 2500 K. W. capacity, 60-cy., 2-ph., 2400-4800-v., with Wheeler condenser.

FREQUENCY CHANGER SET

- 1-1000 K. W. Westinghouse Frequency Changer Set, 60-cy., 3-ph., 2300-v., to 30-cy., 6600-v., on sub-base and solid shaft, with dir. con. exciter.

ROTARIES

- 1-250 K. W. Westinghouse, 25-cy., 3-ph., Rotary, 370-v., A. C.; 550-v. D. C., with 3-100 K. V. A. transformers, 6600-v. primary panel, etc.
- 1-500 K. W. G. E., 60-cy., 3-ph., 445-v., A. C.; 600-v. D. C., with transformers 13,200-v. primary, panel, etc.

MOTORS

- 1-1200 H. P. General Electric, 25-cy., 3-ph., 2200-v., 250 R. P. M. Induction Motor, complete, with shaft extension both ends.
- 1-250 H. P. Burke, 60-cy., 2 or 3-ph., 2200-v. Synchronous Slip-Ring Motor, with panel, coupled to 24-in. Platt twin rotating pump, Twenty Million G. P. D., 45-ft. head.

PAUL STEWART & COMPANY
CINCINNATI, OHIO

A. C. MOTORS

3 Phase, 60 Cycle

No.	H. P.	Make.	Volts.	Speed.
1	2	General Electric	220	1800
1	2	Allis-Chalmers	220	1800
1	3	Allis-Chalmers	220	1800
1	3	Crocker-Wheeler	220	1800
1	5	Allis-Chalmers	220	1800
1	7 1/2	Allis-Chalmers	550	1800
1	25	Westinghouse	550	1200
1	35	Allis-Chalmers	550	1800
1	50	General Electric	550	720
1	50	Westinghouse	550	1200
1	100	Westinghouse	550	720

D. C. MOTORS

No.	H. P.	Make.	Volts.	Speed.
1	1	Sturtevant	220	1400
1	2	Western	110	1100
1	2	Sturtevant	220	1250
1	2	Sturtevant	220	1000
1	3	Sturtevant	220	1000
1	5	Westinghouse	220	1000
1	5	Sturtevant	220	1350
1	10	Sturtevant	220	900
1	15	Sturtevant	220	800

PROMPT SHIPMENT.

K. L. Jones Machinery Co.
ATLANTA, GA.

Dynamos and Motors

One 50 H. P., 3-phase Westinghouse Motor; also one 10 and one 30 H. P.

One 50 K. W., 125-volt G. E. Generator, direct connected to an Armington & Sims center-crank steam engine.

One 35 K. W. Diehl, 125-volt Generator, direct connected to Ball-Wood center-crank steam engine.

One 15 K. W., 125-volt Eddie Generator, to Ideal horizontal center-crank steam engine.

S. J. STEWART (ELECTRIC)

312 Carondelet St. NEW ORLEANS, LA.

Long Distance Phone M2'01-23'2

We Operate the Largest Electric Repair Shop South.

ELECTRIC POWER PLANT FOR SALE

Now on skids at Redwine, Kentucky; can ship quick. Recently overhauled and is in perfect working order. Price \$6,750 f. o. b. cars Redwine, Ky., sight draft and B/L attached. Can be inspected any time.

1 General Electric Curtis Turbo-unit consisting of:

- Generator: 1 750 K. W. General Electric Vertical, 3-phase, 60-cycle, 2200 or 440 volts 1800 R. P. M.
- Turbine: 750 K. W. Condensing (350) K. W. Non-condensing Curtis Vertical, 1800 R. P. M., 150 lbs. steam pressure at throttle, 24" vacuum. Above complete with all piping equipment. No condenser equipment.

LENOX SAW MILL COMPANY, LENOX, KY.

MOTOR FOR SALE

75 H. P., 220-volt, 3-phase, 60-cycle, 450 R. P. M., A. C. Ideal type "A" Squirrel Cage INDUCTION MOTOR, with sliding base, pulley and type "B" compensator. Used one month.

W. E. Mettler, American Blower Co.

DETROIT, Mich.

FOR SALE

One 150 K. W., 60-cycle, 3-phase, 2300-volt Generator, direct connected to heavy-duty Corliss engine; one 115 K. W. Bullock Generator, 60-cycle, 3-phase, 2300-volt; one 18x42 Monarch Corliss Engine, rolling-mill type; one 50 K. W. Belted Unit, 60-cycle, 3-phase, 2200-volt; two 75 K. W. D. C. Generators, 220-volt, direct connected to tandem compound Corliss engines. Fine condition, prompt shipment. Large stock Pumps, Heaters, Boilers and Motors.

Harlan & Harlan Machine Works

KANSAS CITY, MISSOURI

WILSON MACHINERY CO.

419 PINE ST. ST. LOUIS

A. C. UNITS 3 PHASE 60 CYCLES

K. W. Make Volts Rev. Engine

75 G. E.	2200	—Poppet Valve Chandler & Taylor
2-100 Westge.	440	271 18x24 1/2 Westge. Vert.
600 G. E.	2200	6000 Curtis St. Turbine
2-105 G. E.	2200	257 18x14 Ideal
150 Westge.	Any	257 16x21 1/2 Westge. Vert. C.G.
150 Westge.	220	300 14x2 x20 Russell
200 West. El.	220	400 20x18 Atlas
240 G. E.	2200	200 18x25 1/2 Harrisburg
300 G. E.	440	—M.C. & Sec. C. C. 4-Va.
2-400 Westge.	Any	3000 Westge. St. Turbine Hor.
400 Westge.	2200	150 18-22x36 Corliss
400 Ridg.	220	150 27x26 Ridgway.
2-600 G. E.	2200	150 Rice & Sarg. C. C. Cor.
600 Westge.	Any	100 25x10 1/2 L. & R. Cor.
2-750 Westge.	2200	90 Allis Corliss C. G.

All above generators can be reconnected for 440-220 Volts.

D. C. UNITS—250 Volts

K. W. Make Volts Rev. Engine

550 Allis	250	100 Allis Vert. C. C.
550 Ft. Wayne	250	90 22 & 38x48 Ham. C. C. H.
600 G. E.	250	120 18-36x42 Tand. Corliss.
300 G. E.	250	185 B.-Wood C. C.
250 Westge.	250	150 18-22x36 Buckeye.
200 Goodman	250	180 20x22 McKewen.
200 Allis	250	120 14 & 22x30 Allis C. C. Cor.
2 150 G. E.	250	270 B. W. Tand. Comp.
100 G. W.	250	250 Erie Ball Tand.
1 75 Westge.	250	270 14x14 Payne.
50 G. E.	250	280 12x12 Ch. & Tay.

Oil Engines

American Diesel Complete

- 2-150 M. & W. 170-225 H. P. Belted.
- 2-150 K. W. 2300 Volt A. C. dir. conn. to 225 H. P. Diesel.
- 3-150 K. W. 250 Volt D. C. dir. conn. to 225 H. P. Diesel.
- 310 K. W. 2300 Volt A. C. dir. conn. to 450 H. P. Diesel.

ENGINES

30x60 Allis; 28x48 Brown Corliss; 26x48 Allis; 22x42 Vilter Corliss; 18x36, 16x36 St. Louis Corliss, practically new; 14x36, 12x36 Murray Corliss, excellent condition.

BOILERS

H. P.	Press. Lbs.	H. P.	Press. Lbs.
48x14	125	72x16	125
60x16	125	1-72x18	180
2-60x16	125	815 Stirling	180

This is only a partial list. Let us know your exact requirements; we probably have it.

Immediate Shipment

1-800 H. P., one 500 H. P., 517 R. P. M., 2300-v., 60-cy., 3-ph. Slip Ring Motors.
1-150 H. P., 440-v., 60-cy., 3-ph., 600 R. P. M. Slip Ring Motor.

Ross Power Equipment Company
INDIANAPOLIS, INDIANA

SCRAP IRON & STEEL

Avoid trouble by selling to an old-established, reputable concern.

We will pay the maximum prices allowed by the Government on nearly all grades, resting satisfied with the commission the Government allows the consumers to pay brokers as our profit.

A. M. WOOD & CO., Inc.

305 Commercial Trust Building, Philadelphia, Pa.

- 1-42-in. 3-Drum Invincible Sander.
- 1-42-in. 3-Drum Columbia Sander.
- 1-60-in. 3-Drum Columbia Sander.
- 1-48-in. H. B. Smith Endless-Bed Sander.
- 2-24-in. 2-Drum Egan Sander.
- 1-24-in. 1-Drum Boss Sander.
- 1-30x 6 Fay 6-Roll Double Surfer.
- 1-25x 8 Woods 6-Roll Double Surfer.
- 1-25x 8 Rogers 6-Roll Double Surfer.
- 1-30x12 999 6-Roll Double Surfer.
- 2-30x 6 Egan Cabinet Planer.
- 1-27x 7 Smith Cabinet Planer.

Woodworking Machinery of All Kinds
Engines and Boilers

THE CLEVELAND BELTING & MACHINERY CO.
1922 Scranton Road Cleveland, O.

First-Class Used Machinery

For Every Conceivable Kind of

BORING MACHINES
DRILLS
GEAR CUTTERS
HAMMERS
LATHES
MILLERS
PLANERS
SHAPERS
SAWS
SHEARS
TURRENT LATHES, Etc.

CONSULT

HENRY PRENTISS & CO., Inc.
NEW YORK, N. Y.

FOR SALE

One Fay & Egan 6' Band Saw Mill, complete with power plant, carriage, filing-room equipment. Price for the entire outfit, \$3750.

Egan No. 5½ Short Log Band Saw Mill, with 60" wheels, carriage and filing-room equipment. Price complete, \$1000.

Circular Saw Mill, 20 H. P. Shadler boiler and engine, Aultman & Taylor standard mill complete. Price, \$625.

HOISTING ENGINE, single drum, 3¼x10 cylinders, O. & S. make, complete with about 1000 ft. of ¾" wire rope. Price complete, \$1350.

HOISTING ENGINE, double drums, 6¼x8 cylinders, O. & S. make, Price, \$825.

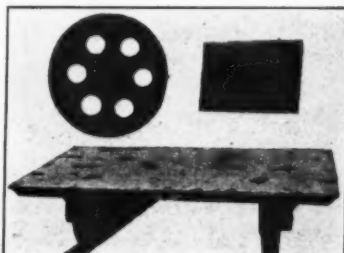
American Deep Well Works Deep Well Steam Pump, cylinder 8"x36". Price, \$300.

Hall Steam Pump Co. Air Compressor Steam Pump, double or twin cylinders 10x12x14; will weigh 15,000 pounds; in fine condition. Price, \$1800.

Boilers; two Atlas Engine Works; boilers 56"x20", with 14-6" tubes; operating now as a unit; complete with all fixtures and one stack. Price for the complete outfit, \$2750.

More complete description will be furnished upon request. Write for our special catalogue of used machinery.

A. A. McLAUGHLIN & COMPANY
403-5 Bell Block Cincinnati, Ohio

**CARS FOR SALE**

85 Industrial Push Cars, one Transfer Car, six Turntables. At Wichita, Kan. Construction of all iron and steel. Gauge 36 inches, height above rail 14 inches, weight 550 each. Top is ¼ inch steel, reinforced on all edges by two-inch angle iron, and by ribs of three-inch angle iron through middle. Wheel 12 inches diameter, roller bearings, top 62 inches measured across the track, 38 inches measured with the track. Spindles 1½ inch diameter. Capacity 6000 to 10,000 pounds. In excellent condition. Sale price f. o. b. cars, Wichita, \$30 each.

J. A. PARKINSON
1510 Commerce Building, KANSAS CITY, MO.

FOR SALE

FIRST CLASS

Used Machinery

Logging, Railroad, Sawmill, Planing Mill, Cableway, Power Plant, Yard, Fire Protection Engineering and Barn Machinery and Equipment, including following and many other items:

BOILERS—Battery of four 100 H. P. Boilers, with stack.

CABLEWAY ENGINE—Lidgerwood 12x12 Cableway Engine, with steel tower.

DRY KILNS—Complete two-room dry kilns.

DRAG SAW—Hill No. 7 Steam Drag Saw, with steam hoist.

FOUNDRY—Whiting No. 2½ Cupola and Complete Foundry Equipment.

GRINDER—Covel No. 90 Band Saw Grinder, with filing clamp.

LOG JACKER—Extra heavy Spur and Bevel Gear Drive.

LOG TURNER—Overhead.

MOLDER—Woods No. 107 Inside Molder.

PLANNER AND MATCHER—American No. 229 Planner and Matcher.

PREPARATOR—Kraetzer Steel Cylinder Preparator.

RESAW—Six-foot Diamond Horizontal Resaw.

SHINGLE MACHINE—Challoner 10-Block Shingle Machine.

SPRINKLER—Grinnell Automatic Sprinkler System complete.

If interested, write for complete booklet and prices covering many other items.

Santee River Cypress Lumber Co.
FERGUSON, S. C.

DELIVERY NOW
SECOND-HAND TOOLS

36" x 36" x 24' L. W. Pond Planer
Two heads on cross rail.

Landis 10"x30" Plain Grinder with Universal Headstock.

Two Brown & Sharpe No. 3 36" Automatic Gear Cutters.

Single Automatic Gear Tooth Chamfering Machine.

24" Cincinnati High-Speed Driven Universal Drill with Gear Box and Tapping Attachment.

Universal Swivel Table for Radial Drill No. 1 Diamond Bench Grinder on pedestal.

24" Rockford Wet Tool Grinder.

Globe Tool Sharpener.

Dry Grinder for two 12" wheels.

15 H. P. Monitor Planer Control with motor, 110-volt, D. C., first-class condition.

D. C. MOTORS

1 7½ H. P. Westinghouse, 230-volt constant.

1 5 H. P. Reliance, 230-volt constant.

1 ¾ H. P. General Electric, 110-volt variable.

1 5 K. W. Triumph, 250-volt Generator.

The Lodge & Shipley Machine Co.
Company
CINCINNATI

Saw Mill Machinery For Sale

Large stock Engines, Boilers and all kinds of Saw Mill Machinery, including Shingle, Lathe and Planing Mill Machinery, Filing Room Equipment, Machine Tools, Railroad Equipment, etc.

HARTFELDER-GARBUTT MACHINERY COMPANY

EQUIPMENT AND SUPPLIES FOR
MILLS AND RAILROADS

SAVANNAH,

GEORGIA

The only way to keep in touch with Southern Development is by reading the Manufacturers Record.

1876 THE MACHINERY HOUSE OF THE EAST FRANK TOOMEY, Inc. 1918

LATHES

- 10"x14" Climax.
- 14"x8" New Carroll Jamieson Quick Change.
- 14"x8" New Carroll Jamieson Quick Change.
- 4-15"x8" New Sidney D. B. G. Quick Change, swing 17".
- 7-17"x8" New National Quick Change.
- 17"x8" New Sidney D. B. G. Quick Change, swing 15".
- 18"x8" Rahn Mayer.
- 18"x8" Flather.
- 18"x8" Schumaker Boys.
- 19"x8" Reed.
- 24"x20" Reed.
- 32"x24" Fay & Scott.
- 24"x48"x24" McCabe Double Spindle.

TURRET LATHES

- 2"x24" Jones & Lamson Geared Head.
- 3-24" Davis Boring and Chucking Lathes.
- 1-¾" S. & K. Back Geared Wire Feed.
- 2-No. 1 Bardon & Oliver Hand Screw Machines.

HORIZONTAL BORING MILLS

- 4" Bar Niles Knee Type.
- 2½" Bar Warney & Swasey Knee Type.

MILLERS

- No. 2 Kempsmith New Universal, with vertical attachment.
- No. 1½ Cincinnati Universal.
- No. 1 U. S. New Hand Miller.

SHAPERS

- 4-14" New Steptoe.
- 1-14" Steptoe.
- 4-16" New Steptoe B. G.
- 2-24" New Steptoe B. G.
- 16" Bement Traveling Head.

GRINDERS

- 10"x30" Brown & Sharpe.
- 10"x24" Iroquois.
- 10"x20" Bath.

- No. 1 New Fraser Universal.
- No. 1 New Grand Rapid Universal Reamer and Cutter.
- No. 2 Grand Rapid Universal Reamer and Cutter.
- No. 100 New Wells Universal Reamer and Cutter.
- No. 3 B. & S. Universal Reamer and Cutter.

RADIAL DRILLS

- 42" Niles Plain Cone Drive.
- 30" Universal Plain Cone Drive.
- 42" New Canedy-Otto.

DRILLS

- 38" New Superior Sliding Head.
- 32" New Superior Sliding Head.
- 30" G. & E. Sliding Head.
- 2-28" New Superior Sliding Head.
- 2-28" New Superior Sliding Head.
- 25" New Superior Sliding Head, with tapping attachment.
- 24" New Superior Stationary Head.
- 21" New Superior Stationary Head.

- 20" New Superior Stationary Head.
- 20" New Champion Stationary Head.

HAMMERS

- 350-lb. Sellers Single Frame Steam.
- 250-lb. New Little Giant Belt.
- 4-100-lb. New Little Giant Belt.
- 3-60-lb. New Little Giant Belt.
- 4-25-lb. New Little Giant Belt.

PLANERS

- 36"x36"x8" Gray, two heads.
- 30"x30"x10" Fitchburg, one head.
- 24"x24"x8" Gray, one head.

NUT TAPPERS

- ¾" to 2" Six-Spindle National.
- 1½" to ¾" Five-Spindle National.
- 3/16" to ½" Five-Spindle National.

SLOTTERS

- 10" Newton Power Feed to Rotary Table.

"STEAM AND ELECTRICAL EQUIPMENT"**WATER TUBE BOILERS**

- 1-150 H. P. Babcock & Wilcox Water-Tube Boiler, 125 lbs. steam working pressure, with 80 ft. of 36" dia. stack, heater, feed-water pump and damper regulator; complete plant.
- 2-250 H. P. Babcock & Wilcox Water-Tube Boilers, 150 lbs. steam working pressure.

HORIZONTAL RETURN TUBULAR BOILERS

- 150 H. P. 72"x18" Coatesville, 125 lbs. steam pressure.
- 150 H. P. 72"x18" Vulcan Iron Works, 125 lbs. steam pressure, with stack and steam blower.
- 2-150 H. P. 66"x20" Sotter Bros., 115 lbs. steam pressure.
- 50 H. P. 48"x16" Lebanon, 100 lbs. steam pressure.

LOCOMOTIVE AND PORTABLE BOILERS

- 100 H. P. Locomotive Boiler, 100 lbs. steam pressure.
- 50 H. P. Locomotive Boiler, 125 lbs. steam pressure.
- 40 H. P. Marine Type Return Flue Portable Boiler, 100 lbs. steam pressure.
- 25 H. P. Erie City Iron Works Portable Return Tubular Boiler, 100 lbs. steam pressure.

STORAGE TANK

- 6' dia. x 31' 6" long Storage Tank, 3/16" material, capacity 8000 gallons.

STEAM TURBINE A. C. SET

- 1-110 H. P. De Laval Steam Turbine, direct connected to two 37½ KVA General Electric 2300-volt 60-cycle 3-phase Alternators with direct-connected exciter.

A. C. OIL ENGINE UNIT

- 1-375 K. W. Fort Wayne 3-phase 60-cycle 2300-volt Alternator, direct connected to one pair of Diesel Vertical Oil Engines.

OIL ENGINES

- 40 H. P. Mietz & Weiss Horizontal Oil Engine.
- 18 H. P. Mietz & Weiss Horizontal Oil Engine.

BELT-DRIVEN AIR COMPRESSORS

- 22-13x18" Laidlow-Dunn-Gordon Two-Stage Belt-Driven Duplex Air Compressor, 750 cu. ft. capacity.
- 12½"x12" Ingersoll-Rand Single-Stage, 305 cu. ft. capacity.

MOTORS

- Large stock of A. C. and D. C. Motors, new and used, from ½ to 250 H. P., in stock for immediate delivery.

127-131 North Third St.

PHILADELPHIA, PA.

HARRIS BROTHERS COMPANY, CHICAGO

Offer From Stock

Complete Crushing Unit

1-Complete Crushing Outfit, consisting of one Class K Allis-Chalmers gyratory crusher No. 6, 1 No. 3 crusher, complete with elevator, approximately 50', and three-section screen, with hoisting and driving apparatus, arranged for either steam engine or electric motor.
Also, 1 No. 6 McCully Heavy Duty Belt-Driven Gyratory Crusher.
1-No. 4 Champion Portable 4-Jaw Stone Crusher, with elevator, mounted on wheels, 9x15' opening.

Industrial Dump Cars

150-20' gauge, 1-yd. cap., V-shaped and one-side Dump Cars.
75 flat-top, 20' gauge industrial all-steel Cars.
118-24' gauge K. & G. Box Cars, 30 cu. ft. cap.
67-24' gauge Atlas Flat Cars.

Mixer

1-1-yard Steam-Driven Chain Belt Mixer.

Blower

No. 4½ Root Positive Blower.

Hoisting Engines

1-7x10 double cylinder, single drum Mundy Hoisting Engine, skeleton type.
2-4x6 double cylinder, single drum Stroudsburg Hoisting Engines.
1-8x10 double cylinder, double drum Flory Hoisting Engine, skeleton type.
1-9x10 double cylinder, double drum Russell Wheel & Foundry Co. Engine.
1-Double cylinder, double drum Flory Hoisting Engine, skeleton type, cylinders 8x12.

Direct Connected Outfit

1-Triumph 150 K. W., 250-volt, D. C. Electric Generator, with 16x21 Chuse 4-valve engine, complete with switchboard.
1-125 K. W. 125-volt D. C. Generator, direct connected to 18x18 Ames automatic center-crank engine, with switchboard and all equipment.

Locomotives

2-20' gauge Steam Locomotives.
1-24-ton Shay geared, standard gauge Locomotive.
1-60-ton, 4-wheel, standard gauge Locomotive.
1-60-ton American & Baldwin.
1-60-ton American & Baldwin.
1-6-wheel American Locomotive, 61 and 63-ton, 180 lbs. pressure.

Gravel and Push Cars

25-20-yard-capacity, standard gauge, Gravel Cars.
25-Standard gauge Push Cars, 10' long, suitable for stone and other heavy handling.

Dump Cars

30 Western & Oliver type, all-steel, 12-yd. Dump Cars, which we offer for sale or lease. These cars are located at various points in the East.

Overhead Traveling Cranes

1-4-ton, 2-motor Electric Crane, 20' span, 230-volt.
2-75 Steel Plate Girders, equipped complete with 20-ton capacity hand-power trolley.
1-25-ton hand-power Traveling Crane.

Surface Condensers

1-3000' Baragwannath.
1-700' Worthington.
2-400' Worthington.
2-400' Baragwannath.

Steel Buildings

1-Steel Frame Building, 48' 6" clear span, 80' long, 10' columns to bottom chord.
1-Steel Building, 41' 6" clear span, 80' long, 45' column to bottom chord.
1-Steel Frame Building, 43' 4" clear span, 100' long, 20' column to bottom chord.
1-Steel Frame Building, 50' clear span, 32' long, 30' column to bottom chord.
1-Steel Frame Building, 75' clear span, flat truss, 160' long, 40' column to bottom chord.

Hydraulic Riveting Outfit

1-Chambersburg 150-ton Hydraulic Riveting Outfit, consisting of 1 hydraulic riveter, 12' 8" gap with pump, hydraulic hoist, crane, accumulator and container.

Gullotine Shear

Brand new Corvington Gullotine Vertical Gate Shear; capacity 38" between housings; stroke 1½"; shears 1½" plate; clutch control; arranged for motor drive. Will sell with or without motor. Shear is brand new, and is offered for prompt shipment; subject to prior sale.
Wire, or write for full details.

Derricks

1-Wood Guy Derrick, with mast approximately 14x14 at base, 10x10 at top, with boom 80' long, 10x10.
1-Wood Guy Derrick, with mast approximately 12x12, 60' high, with boom 60' to 80' long; 10x10; fitted with brass pushed sheaves and cable.
1-Guy Derrick, with mast 14x14 at base, 10x10 at top, with boom 10x10, approximately 60' long, complete, with all irons, turntable, double block sheaves.

Rails

1800 tons 70-lb.
250 tons 85-lb.
50 tons 40-lb.
Complete with angle bars and spikes for immediate delivery.
6 miles 36" gauge Portable Track, with steel ties, 20 and 25-lb.

Locomotive Cranes

1-20-ton O. & S., 8-wheel, 42½' boom.
1-40-ton Bucyrus, 8-wheel, 55' boom.
1-2-ton, 4-wheel railway type, 110-volt storage battery Electric Locomotive Crane; boom 15', full revolving, with motors and controllers.
1-15-ton, 8-wheel American.

Steel Tanks

1-12,000-gal. Storage Tank.
2-11,000-gal. Storage Tanks.
1-8,000-gal. Storage Tank.
2-6,500-gal. Car Tanks.
2-2,000-gal. Car Tanks.
1-8x12 Air Tank; double riveted, ½" material.
1-60'x24' Pressure Tank, ¾" material.
2-60'x14' Tanks; double riveted, ¾" plate.
25-16'x46' Pressure Tanks.
1-20' dia., 135' high Water Tower Tank, made of plates ¼", ½", 5/16" and ¾".

Air Compressors

1-24x26x16x30 Two-Stage Sullivan, 1850 cubic ft.
1-10x16x10x10 Two-Stage Clayton, 550 cubic ft.
1-14x16x9x10 Rand, 400 cubic feet.
2-10x10x4x10 Single-Stage Gardner.
2-1250-ft. cap. Ingersoll-Rand, steam driven, Imperial type.

Water Pipe

50,000 ft. 1"	15,000 ft. 4"
35,000 ft. 1½"	8,000 ft. 6"
25,000 ft. 2"	2,000 ft. 8"
15,000 ft. 2½"	3,000 ft. 10"
10,000 ft. 3"	1,500 ft. 12"

13,000 ft. 1½" double, extra strong, seamless Steel Tubing; good for 5000 lbs. pressure, fitted with Briggs threads each end, and couplings.

20" Pipe

15 miles of 20" Spiral Riveted A. & R. Pipe, with flanged compression connections. This pipe is made of No. 8 gauge; is in A-1 condition. Delivery can be made immediately.

Wire Cable

Several thousand feet of Steel Wire Cable, ranging in sizes from ½" to 2". Send us a memorandum of your requirements.

Large Pumps

1-12x20x12x18, outside packed, Platt Iron Works.
2-12x20x10x24 Snyder-Hughes.
2-16x10x4x14 Knowles, outside packed.
10-6x4x6 Worthington Duplex.
2-12x30x24 Worthington Vacuum Pumps.

Complete Power Plant

4-72x18' Triple-Riveted Butt-Strapped Boilers, with Sturtevant mechanical draft, coal-handling and weighing apparatus.

Boilers

7-250 H. P. Cahall Vertical Boilers, Rooney stokers, 160 lbs. pressure.
2-360 H. P. Atlas Water-Tube, shaker grates, 150 lbs. pressure.
2-150 H. P. Scotch Marine, 125 lbs.
5-100 H. P. Marine Boilers, 100 lbs.
2-125 H. P. Marine Boilers, 125 lbs.
2-80 H. P. Firebox Boilers, 80 lbs.
4-72x18', triple riveted, butt strapped, 125 lbs. pressure.
2-66'x16', triple riveted, butt strapped, 125 lbs. pressure.

Punches and Shears

1-Heavy-duty Gate Shear, with 21" blade, 11" throat, cap cutting up to 1½" plates, spur gear, 42" dia. by 10" face.
1-40' Rock River Stake Horn Riveter, ¼".
1-Bement-Miles combined Punch and Shear; depth of throat 22", shears 6x1" flats.
1-Lennox Rotary Bevel Shear; cuts ¼" plate.
1-Wiener Steel Plate I-Beam Shear for 15" I-beams.
1-Single End Punch, 27" throat, ¾" through ¾".
1-Plate Splitting Shear, 12" knives for ½" plate.
2-Niles 12' boilermakers' Flanging Clamps.

EQUIPMENT

Immediate Delivery

GENERATING SETS

- 1-20 K. W. D. C. General Electric to Ideal engine.
- 2-25 K. W. D. C. Thompson & Ryan to McKewen engine.
- 1-15 K. W. 40-volt Eddy Electric Motor Generating Set.
- 1-60 K. W. 220-volt D. C. Allis-Chalmers Generator.
- 1-135 K. W. 240-volt 2-phase Stanley Generator, with engine.

TURBINES

- 3-75 K. W., 250-volt D. C. General Electric Generator, direct connected to Curtis turbine, 150 lbs. working pressure, complete with oiling system and switchboard.

MOTORS

From 2 to 80 H. P., direct current, 220 volts.

HOISTING ENGINES

- 1-32 H. P. D. C. D. D. Mundy, 8x12, with boiler.
- 1-20 H. P. Mead-Morrison Bridge Hoist.
- 1-10 H. P. D. C. S. D. Lambert, Link Motion, 5½x8, and boiler.
- 1-6 H. P. D. C. S. D. Lidgerwood Hoist, 6¼x8, and boiler.
- 1-40 H. P. S. D., 220-volt, D. C. Lidgerwood Builders' Hoist.
- 1-8¼x10 H. P. S. S. S. D. Lidgerwood with boiler.

COMPRESSORS

- 1-1100-ft. Air, Sullivan.
- 1-120-ft. Air, Nagle, steam driven.
- 1-125-ft. Air, Chicago.
- 1-60-ft. Air, Nagle, new, belted.

ENGINES

- 1-300 H. P. Corliss.
- 1-35 H. P. Horizontal.
- 1-100 H. P. Horizontal, Ames.
- 2-25 H. P. Horizontal.
- 1-100 H. P. Horizontal, Taylor.
- 1-50 H. P. Horizontal, Ball.

PUMPS

- 1-1000-gal. Knowles Single.
- 2-Centrifugal.
- 1-750-gal. Worthington Duplex.
- 8-Rotary and Triplex.
- 2-300-gal. Worthington Duplex.
- 2-Deep Well.

BOILERS

- 2-80 H. P. Return Tubular Boilers, 120 pounds pressure.
- 3-100 H. P. Return Tubular Boilers, 100 pounds pressure.
- 1-125 H. P. Return Tubular Boiler, 125 pounds pressure.
- 2-125 H. P. Return Tubular Boilers, 100 pounds pressure.
- 3-150 H. P. Return Tubular Boilers, 120 pounds pressure.
- 1-250 H. P. Sterling Boiler, 120 pounds pressure.
- 3-80 H. P. Locomotive Boilers, 100 pounds pressure.
- 2-75 H. P. Locomotive Boilers, 100 pounds pressure.
- 1-75 H. P. Economic Type Boiler, 100 pounds pressure.

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20,000 ft. 2½ in. Pipe 25,000 ft. 2 in. Pipe
20,000 ft. 1½ in. Pipe 25,000 ft. 1 in. Pipe

Large stock, all sizes, furnished with new threads and couplings

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Large stock of good sound SECOND HAND pipe in long straight lengths. No rust pits or eaten places; couplings and threads perfect

Largest stock of NEW pipe in the Middle West

OHIO PIPE CO., Works and Yards, FINDLAY, OHIO

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Second-Hand
All Sizes, ½" to 24"

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Also large assortment of Contractors' Equipment, Hoisting Engines, Bidders, Concrete Mixers, etc.; all thoroughly overhauled.

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8,000' of 12" pipe.
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50,000' of 2" pipe.
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100,000' of 1¼" pipe.
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Also, a large stock of 16", 18" and 20" pipe.

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Second-Hand Pipe**

Cut and threaded to any desired length. Pipe for steam, water, irrigation or other purpose. Write for prices. We can positively save you money. Your orders solicited. We are always in the market for scrap iron, metals, etc.

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Buy, Sell and Exchange Machinery of All Kinds

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Buyers of Scrap Iron and Metals

Complete Plants Purchased

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1—W. H. Wood Hydraulic Riveter, complete, with accumulator, high-pressure pump, container and hydraulic hoist. Riveter has 8' 3" gap.

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1—American, 42" arm, 36" swing, cone drive, worm movement. Swinging and tilting table.

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25-ton Frick Plant complete, ice-making.
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One 1¼ yd. Hayward Orange Peel Bucket, good as new. Price \$500.

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1 8¼x10 Thomas D. C. D. D. Chain Drive.
Two-Speed Skeleton, Stearns Hoist.
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50-ft. Steel Two-Section Steam Shovel Boom
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1 40 H. P. Oil Country Locomotive Type
Boller, lap weld.
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One—1-yard Hayward Orange-Peel Bucket.
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One—9"x14" Baldwin Locomotive, S. T., 36"
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One—Marion Improved "A" 45-ton Steam
Shovel, full MCB, with 1¼-yard dipper.
Two—55 H. P. R. T. Boller, 100 lbs., full
flush fronts and fittings, 60" stack, 24"
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85-ton American 4-6-0 Locomotive, built to
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Cars, A-1 condition.

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- 1—40-ton, 8-wheel INDUSTRIAL WORKS LOCOMOTIVE CRANE, equipped with 50-ft. Boom, having two 20-ft. extensions, thus enabling this Locomotive Crane to operate with either a 50-ft. Boom, a 70-ft. Boom or a 90-ft. Boom. This is a strictly modern Locomotive Crane, very little used, and coming right out of our works, for PROMPT shipment. This is an especially desirable, large capacity Locomotive Crane.
- 1—30-ton, McMYLER INTERSTATE LOCOMOTIVE CRANE, equipped with M. C. B. Standard-Gauge, 8-Wheel Railroad Trucks, 50-ft. Boom, with 20-ft. extension, enabling this Locomotive Crane to operate with either a 50-ft. Boom or 70-ft. Boom. This Locomotive Crane has been very little used, just overhauled, and we consider same GOOD AS NEW FOR ALL PRACTICAL PURPOSES. All ready, IMMEDIATE SHIPMENT, right out of our Chicago Works.
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- 1—70 C, BUCYRUS STEAM SHOVEL, strictly modern machine, with extra long Boom, 38 ft. in length, and extra long Dipper Arm, 56 ft. in length, ESPECIALLY ADAPTED FOR COAL STRIPPING. Mounted on Standard-Gauge, 8-Wheel Railroad Trucks; 2 cubic-yd. Dipper, etc. This STEAM SHOVEL has been used so little it is hardly worth mentioning. Absolutely just like new. All ready for IMMEDIATE shipment and service.
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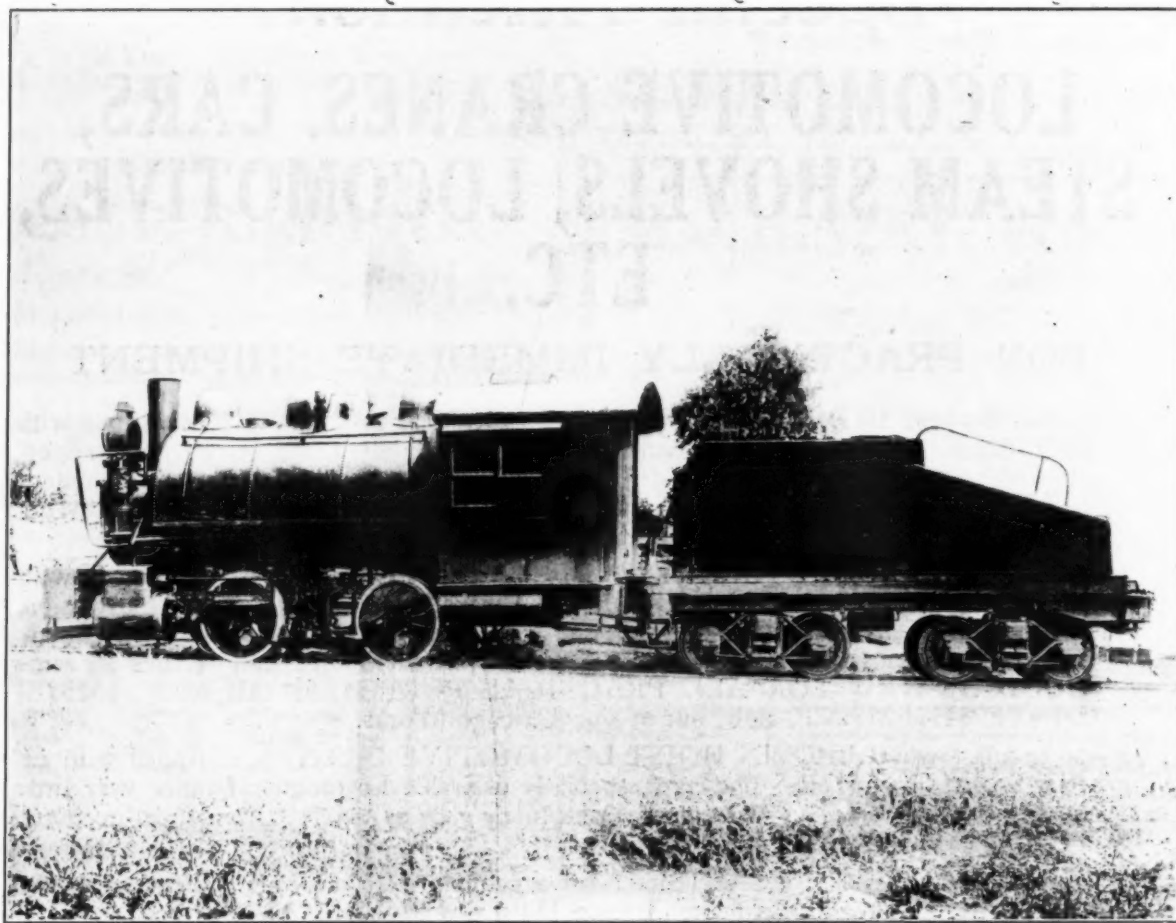
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AMERICAN-SCHENECTADY FOUR WHEEL SADDLE TANK SEPARATE TENDER SWITCHING LOCOMOTIVE

GAUGEStandard
CYLINDERS16x24
FUELCoal
DRIVERSDiam. 40"
WORKING PRESSURE.....175 lbs.
BOILERDiam. 48"
TYPEStraight
FIRE BOX.....42"x35"

TUBES148 2" diam. x 12' 6" long
ENGINE WHEELS.....Four
TENDER (kind).....Sloping
WATER CAPACITY.....3000 gals.
FUEL CAPACITY.....4 tons
No. of WHEELS.....8
DIAM.30"

**Engine built 1910. Used very little. Carries 175 lbs.
steam pressure. Immediate shipment.**

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STEAM SHOVEL
1 1/2-yd. dipper, traction wheels; very little used; good as new.

HOISTING ENGINES
Lidgerwood, 7x10 in., 20 H. P., D. C., D. D. Derrick Hoist, with boom swinger.
Lidgerwood, 9x10 in., 35 H. P., D. C., D. D. (KLM) levers in quadrant.

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Each gauge Vulcan, 7x12-inch, 9-ton, four-wheel, saddle tank; new in 1914; used six months.

CONCRETE MIXER
Each, size No. 10, with gasoline engine on wheels; first class.

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New and Relays.
50 to 100 lbs. per yard.

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Wes. Gondola Cars, 40-ton capacity, equipped with four drop doors, overhauls and in excellent condition, for immediate service. F. o. b. Pittsburgh district.

Western 12-cubic-yard, two-way Air Side-Dump Cars. Overhauled and repainted. F. o. b. Central Indiana.

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10x10 Hand Imperial, type No. 11, 400 feet, belted Air Compressor.
Chicago Pneumatic Portable Gasoline-driven Air Compressor, 150 cu. ft., type IF-9.

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200 Closed Feed-Water Heater.
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All other kinds of Contractors' Machinery.

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1000-ft. x 1/2-in., 6/7 C. G. Steel, Lang Lay.
100-ft. x 1/2-in., 6/7 Plow Steel, Lang Lay.
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10-ft. x 2-in., 6/10 Plow Steel, Anchor Weights and Carriages.
10-ft. x 2-in. Flatwire, G. G. Steel, Anchor Weights.
1-ton Steel Wire Rope, 3/4 to 1 in.
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All First-Class Second-Hand Condition
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Air Compressors, Rock Drills, Small Rails, Cars, Buckets, Air Receivers, Hoists, Pumps, Electric Motors, etc. Can be seen running.

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85-lb.
A. S. C. E. RELAYERS
1000 tons, with Angle Bars to match. Available immediate shipment and centrally located. We positively own these Rails and offer same in carload lots and over.
1000 tons Relayers, sizes 25-lb. to 100-lb., in stock our Pittsburgh yards and vicinity. Immediate shipment guaranteed and prices very attractive.
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Rails cut to length for structural purposes. Firms, Switches, Bolts, Nuts, Spikes and accessories.

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AIR COMPRESSORS AND TANKS
Steel Derrick Car, Derricks, Dredge Buckets, Engines and Pumps.
A. B. CLARK COMPANY
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McMyler-Interstate

35 ton, 8 wheel, M. C. B., 70-ft. boom, equipped for bucket; first class; immediate shipment.

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LOCOMOTIVES CARS SHOVELS

- 1-Standard-gauge American saddle-tank Locomotive, 36-ton, 14x20" cylinders. Fine condition.
- 1-Rodgers 4-wheeled Switcher, with tank, 16x22" cylinders. Excellent condition; in service.
- 40-Koppel Cars, 1 1/2-yd., 24" gauge. Like new.
- 20-Western Dump Cars, 36" gauge, steel frame.
- 1-18-B Bucyrus Steam Shovel, traction, with 7/8-yd. dipper. Has as extra equipment a 40-ft. boom and 3/4-yd. clam shell bucket. Practically new and available for immediate shipment.
- 1-Standard 70-ton Bucyrus, 2 1/2-yd. dipper, entirely rebuilt recently by Bucyrus Co.
- 1-No. 3 Thew, on standard-gauge trucks, full revolving, 1 1/2-yd. dipper, in excellent shape. Can be seen in operation.

Wire or Write
LEONARD F. SMITH
LA PORTE, INDIANA

FOR SALE

BARGAINS IN MACHINERY and SUPPLIES
400 tons 45-lb. Relaying Rails and Angle Bars.
60 tons 30-lb. Relaying Rails and Splice Bars; straight and little worn.

2-72x20 Boilers, 130-lb. pressure.
2-60x16 Boilers, 105-lb. pressure.
1-54x16 Boiler, 95-lb. pressure.
1-54x12 Boiler, 95-lb. pressure.

1-Russell Three-Drum Skidder, 9x11 engine; water tank on separate car.

1-Pile Driver, Flory Mfg. Co., 7x10 engine, on flat car.

1-Adams 16x20 Slide Valve Engine.
1-Skinner 12x15 Engine.
1-43-ton Standard-Gauge Mogul Locomotive.
14 Pairs of 33-inch Car Wheels on 3 1/2"x7 journals, about 40,000 lbs. capacity.
17 Pairs 24-inch Car Wheels, 3 1/2"x7 journals.
Sawdust and Slash Conveyor Chain with cleats; nearly new.

Write for list of Mill Supplies.
All can be seen here.

LUMBER MINERAL CO.
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Locomotives For Sale

One 24-ton Shay Locomotive, Lima make, 3-ft. gauge, in first-class condition. Also one 22-ton Locomotive, Baldwin make, mogul style, 3-ft. gauge, in first-class condition. Address

Deep River Lumber Corp.
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HOISTING ENGINE For Sale
One 8-horse-power Byers Hoisting Engine, with boiler and stack, in good condition, recently repainted, single cylinder, single drum, reversing type, together with 350' of Cable and Elevator, about 5'x6", in good condition. Price of above equipment complete \$300 f. o. b. cars Huntington, W. Va.

THE H. T. LAMBERT CO.
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HOISTING ENGINE FOR SALE

Lidgerwood 7"x10" D. C. D. Hoisting Engine, with boiler, complete; just overhauled; A-1 condition.

H. W. DEXTER
JACKSONVILLE FLA.

Special—Immediate Delivery

Machinery for Moving Materials

- STANDARD GAUGE LOCOMOTIVES**
1 Porter 4-wheel 12 in. x 16 in. Saddle Tank, weighing 25 tons.
1 American 4-wheel 14 in. x 24 in. Saddle Tank, weighing 35 tons.
2 American Moguls, 18 in. x 24 in., square tender, weighing 55 tons.
- 36-INCH GAUGE LOCOMOTIVES**
6 Porter 4-wheel 9 in. x 14 in. Saddle Tanks, Contractor's type.
2 Vulcan 4-wheel 9 in. x 14 in. Saddle Tanks, Contractor's type.
2 Vulcan 4-wheel 10 in. x 16 in. Saddle Tanks, Contractor's type.
1 Baldwin Consolidation 15 in. x 20 in., square tender, weighing 38 tons.
1 American Forney 10 in. x 16 in., weighing 25 tons, 2-4 type.
- HOISTING ENGINES (STEAM)**
1 Flory 10 in. x 12 in., double cylinder, single drum, without boiler.
1 Flory 9 in. x 10 in., double cylinder, double drum, with boiler.
2 Stroudsburg 8 1/4 x 10 in., D. C., D. D., with boiler.
1 Flory 10 in. x 12 in., D. C., D. D., with boiler.
- 1 Lidgerwood 8 1/2x10 in., D. C., D. D., parallel, without boiler.
1 Crook 8 1/4 in. x 12 in., D. C., D. D., without boiler.
1 Mundy 6 1/2 in. x 12 in., D. C., D. D., with boiler.
These hoists are all in fine shape, ready to go to work.
- DERRICKS**
1 Steel Guy, 66' mast, 54' boom, complete, with guys, etc.
1 Steel Guy, 100' mast, 85' boom, complete, with all fittings.
1 Steel Stiff-Leg, 50' mast, 80' boom, complete, with all fittings.
Also, several wooden stiff-leg and guy derricks and travelers.
- LOCOMOTIVE CRANES**
1 15-ton, 10' gauge, elec. operated, 5W boom, 1 1/2-yd. clamshell bucket.
1 15-ton Brown-Hoist, steam operated.
1 15-ton Brown-Hoist, 8-wheel.
1 15-ton Browning, 8-wheel, with magnet and generator.
1 4-wheel McMyler.

BOILERS
1 125 H. P., locomotive type.

We also have several air compressors, air pumps, tanks, rock crushers, etc. Will rent a large portion of this equipment at reasonable rates.

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LOCOMOTIVE FOR SALE

Excellent Rhode Island 15x24" 8-wheel Standard Locomotive, weighing 37 tons and 23 tons on drivers; 8' rigid wheel base; 146 lbs. working pressure; 52" driving wheel; thoroughly overhauled. Especially adapted for logging roads.

PRICE - \$3750 00

JAMES T. GARDNER, Inc., 615 Railway Exchange Bldg., CHICAGO

IMMEDIATE SHIPMENT Contractors' Machinery FOR SALE

- HOISTS**
Electric, Gasoline and Steam, All Sizes.
4 to 15 H. P. Novo Kerosene, Sing. and D. D.
16 H. P. D. C., D. D. Byers Steam.
6x8 S. C., S. D. with boiler.
5 and 7 1/2 H. P. Revers. Brick Hoist, electric.
7x10 D. C., D. D., with Ohio or Mass. boiler.
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1-bag batch Milwaukee Steam, power loader.
No. 131 Smith, 1 1/2 yd. cap., batch hopper, like new, with steam or electric power.
2-bag batch Kochring Steam Paver.
2-bag batch Foote Steam Paver.
2 Hot Paving Mixers.
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90 K. W., 3-P., 60-C., 480-V. Generator.
20 H. P., 220-V., D. C., type CO G. E. \$175.
27 H. P., 220-V., D. C., type CO G. E. \$250.
35 H. P., I. H. C. Titan Oil Engine. \$750.
30 H. P. St. Mary's Diesel, type HO. \$800.
3 to 15 H. P. New Novo Kerosene Engines.
32 H. P. Heer Kerosene, 2-cyl., on trucks.
- FOR ROAD AND QUARRY**
Sullivan Class VW-61 Duplex Channeler.
Thew 4-yd. Steam Shovel.
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10-ton, 3-wheel Huber Steam, scarifier attached. \$1750.
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No. 1-A Monaghan 1-yd. Dragline.
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Oshkosh and Novo Saw Rigs.
Emerson Jr. 4" discharge Steam Pump.
Concrete Tower Buckets, Hoppers, Chutes.
Bottom-Dump and Tip-Over Buckets.
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10x10 Smith-Valle Air Compressor. \$400.
3'x17' Air Tank. \$225.

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LOUISVILLE, KY.

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- 1 20-ton Ford Tribloc Chain Hoist, 12' hoist, practically new.
- 1 Eye Beam Trolley, plain; mounting, 20,000 pounds; arranged for mounting 20-ton Ford Chain Hoist; efficient for 50 per cent. overload.
- 1 Geared Eye Beam Trolley, for 13' eye beam; capacity, 20,000 pounds.
- 50 tons of 30-lb. Rails.
- 50 tons of 60-lb. Rails.
- 20 tons of 70-lb. Rails.

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West End Trust Bldg. PHILADELPHIA, PA.

Two 55-Ton, Std. Gauge CLIMAX LOCOS

Perfect order; 180 lbs. working pressure; everything like new; prompt delivery.

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By the Greenbrier, Cheat & Elk Railroad, Cass, W. Va., one 70-C Bucyrus Shovel, three-yard dipper. Shovel equipped with air, has been in use eighteen months.

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- 1—Lidgerwood, 14x18, D. C., three tandem drum, suitable for cableway.
- 1—Shannon, 7½x10, D. C., D. D., with boiler.
- 1—Mundy, 6½x10, D. C., D. D., skeleton.
- 2—Mundy, 6½x10, D. C., D. D., with boilers.
- 1—National, 5½x10, D. C., D. D., with boiler.
- 1—Mundy, 8x12, double cylinder, three tandem drums, butt strapped, triple riveted, boiler, independent Mead Morrison 4½x6 swinging engine, equally as good as new.

STATIONARY ENGINE

- 1—350 H. P. Green Slide Valve Engine, equally as good as new, size 22"x48" wheels 16"x32".

BOILERS

- 3—American-built, Scotch type marine boilers, 12'6" dia. by 20' long, double end, three corrugated furnaces each end, 160 lbs. steam.
- 1—350 H. P., horizontal return tubular Boiler, 125 lbs. steam.

ANCHORS

- 10—New mushroom Anchors, 5000 lbs. each.

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- 6000 ft., strictly first-class 6" wrought-steel Pipe, equally as good as new.
- 700 ft. strictly first-class 20" dia. steel-riveted flange Pipe, lengths 20' each.
- 400 ft., 24" dia., 30' lengths, equally as good as new.

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CENTRIFUGAL PUMPS

- 1—Morris No. 12, 14" suction, 12" discharge, direct connected to horizontal engine, 18x10, 4500 gallons capacity per minute.
- 34—Standard gauge car trucks, four wheel; wheels 34" dia., in first-class second-hand condition.

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We have a large tonnage of all weight rails from 20 to 100 lb. relayers; pass any inspection.

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Station K.

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NOW READY FOR IMMEDIATE SHIPMENT**REVOLVING SHOVEL**

Model 25 Marion on traction wheels, excellent condition, new in spring of 1916.

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- 1—Baldwin, 30-ton, standard gauge, type 0-4-0, saddle tank.

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- 1—¾-yd. capacity Orange Peel Bucket.
- 1—1¼-yd. Clamshell Bucket.
- 1—¾-yd. Clamshell Bucket.

MINE HOIST

Lambert, 10½x12 double cylinder, single drum, 38-in. dia., 24-in. face; drum grooved; will take up ¾-in. cable; drum flanges 8 in. deep; link motion.

BOILERS

- 1—300 H. P. (Heine type) Water-Tube Boiler.
- 1—Marine Type, 150 H. P. (portable).
- 1—Marine Type 100 H. P. Freeman Internal Fired Portable Boiler; diameter 10 in.; length over all 18 ft.; 125-lb. pressure.
- 1—30 H. P. Locomotive Type Portable Boiler and Engine, mounted on iron wheels, with engine mounted on top of boiler.
- 1—Closed Steel Upright Storage Tank, 10 ft. 6 in. diameter, 9 ft. 9 in. high, capacity 6000 gal.

DERRICK HOISTS

- 1—60 H. P. Puget Sound Heavy-Duty Double-Cylinder Double-Drum Hoist with 60-in. diam. butt-strapped boilers. Good log loader or heavy derrick engine.
- 1—7x10 American Double-Cylinder Double-Drum, with boiler.
- 2—Byers 16 H. P. Double Cylinders, double drum, equipped with boilers and swinging gears.
- 2—7x10 Lidgerwood Double Cylinder, double drum, skeleton.

AIR COMPRESSOR

Norwalk 2-stage Steam-Driven Straight Line; capacity, 195 cu. ft. at 100-lb. pressure, running at 180 R. P. M.

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- 1—Standard 10 cu. ft., gasoline driven, mounted on trucks, complete, with loading platform.
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- 1—Lot Concrete Spouting, size 14½ in. wide, 9¼ in. deep; hopper connections.

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- 12—Flat Cars, 50,000-lb. capacity, M. C. R., Journals 4x7.
- 4—1-yd. capacity "V"-shaped Steel Two-Way Dump, 30-in. gauge.

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From Stock

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HOISTING ENGINE

One—Two-cylinder, 25 H. P., Byers 24-in. Hoist, with extra drum for derrick boom; 1000' steel cable, ¾-yard clamshell bucket, derrick, etc. Never used. No better.

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In Stock for Immediate Shipment

- 1—10x12 D. C. D. D. American Hoist & Derrick Company Engine with boiler.
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- 2—10x16-36" gauge Davenport Locomotives, in excellent condition.
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- 1—15 H. P. Novo Gasoline Engine.
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- 2—15-ton 9x14 36-in. gauge Dinkeys.
- 3—18-ton 10x16 Dinkeys, 36-in. gauge.
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- 1—20-ton, 11x16 Dinkey, 36-in. gauge.

CARS

118—4-yard Western Cars, 36-in. gauge, steel and wood beam.

HOISTS, DERRICKS, BOILERS, CONCRETE MIXERS, Etc.

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Union Arcade

PITTSBURGH, PA.

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FOR SALE

22 miles of 56 lb. No. 1 Relayers, with angle bars to match.

18 miles of 60 lb. No. 1 Relayers, with angle bars to match.

Cars, locomotives, switches, frogs, spikes, bolts and nuts. 60,000 and 80,000 capacity all steel trucks.

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One 10,000 gal 60 ft. tower tank, tower built for 20,000 gals., located point of Mississippi. Can be shipped at once.

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250 ton No. 16 and 20-lb Rail; located point of West Virginia.

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I HAVE AT HAGAN, GEORGIA (50 miles from Savannah on the Seaboard Air Line) TWELVE HUNDRED TONS FORTY-POUND RELAYERS AND, IN MY WAREHOUSE HERE ONE HUNDRED TONS GOOD RELAY SPIKES, 1/2 x 4 and 1/2.

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6 Miles 25-lb. Relay Rail. 2 Miles 60-lb. Relay Rail.

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10,000 ft. New 5 in. 6 x 7 plain Steel Wire Rope.

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1-2000 ft. capacity Norwalk Compressor.

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1/4" plain squares, 34,820 lbs., lengths from 8 to 30 feet.

3/8" plain rounds, 21,720 lbs., lengths from 8 to 30 feet.

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3/4" def. sqs., approx. 50 to 60 tons, lengths from 8 to 20 feet.

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Proposals advertised in the Manufacturers Record bring good results.

Locomotive, Steam Shovels, Locomotive Cranes, Cars,
New and Relaying Rails

WE HAVE FOR SALE

40 Standard and 36" gauge modern direct-connected Locomotives in all types and weights from 8 to 75 tons.

10 Standard and 36" gauge geared Locomotives, all weights.

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3000 tons Relaying Rails, all sizes, on our Birmingham yards.

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100 tons new 80-lb. rails on hand in our Chester, (Pa.) yard.

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First-class Relaying in 20, 25, 30, 35, 40, 54, 60, 70-lb.; also Frogs, Switches and Spikes.

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Manufactures Light Steel Rails

12, 16, 20, 25, 30, 35, 40, 45 lbs. per yd.

We are also dealers in Relaying Rails

All Sizes.

Relaying Steel Rails

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Low Prices on New FROGS and SWITCHES.

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A large tonnage of different sizes.

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400 Tons 40s

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Two fifty ton Shays built 1909 and 1913, splendid condition, West Virginia delivery.

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Complete, with splice bars.

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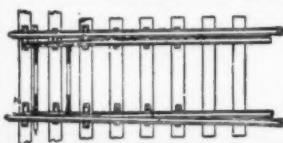
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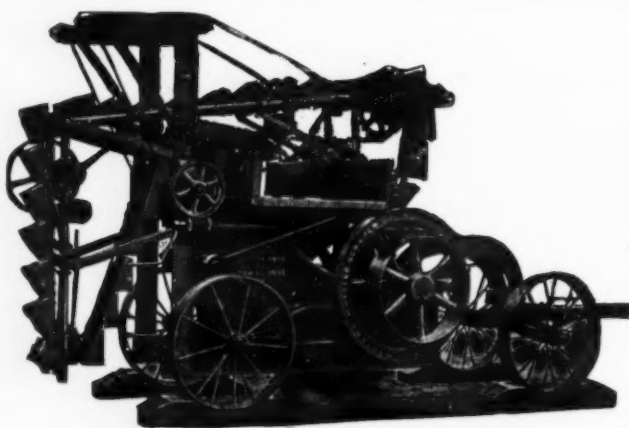
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Thoroughly equipped with
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Also build machinery and
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Owing to the curtailment
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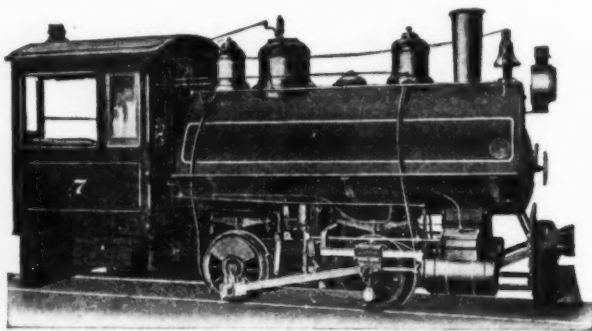
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The illustration shows a Baldwin Contractors' Locomotive of 3 feet gauge and 18 tons weight. There is nothing specially remarkable about this machine—except that it represents the best, in design, materials and workmanship, that can be put into a locomotive of this class. It is just the engine you need for rough and strenuous work.

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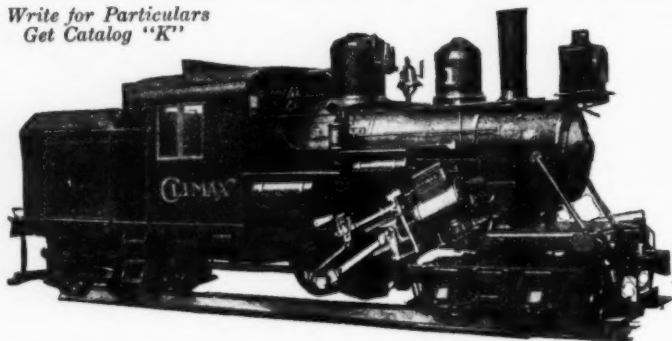
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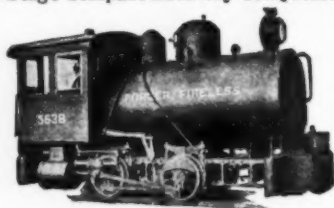
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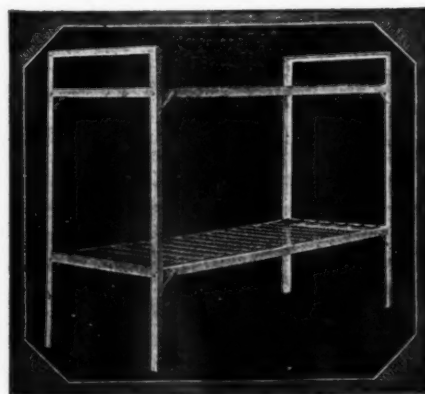


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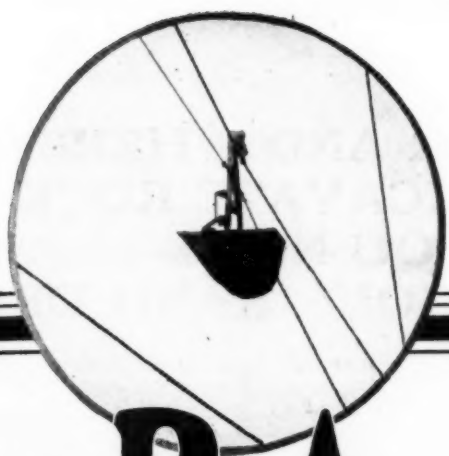
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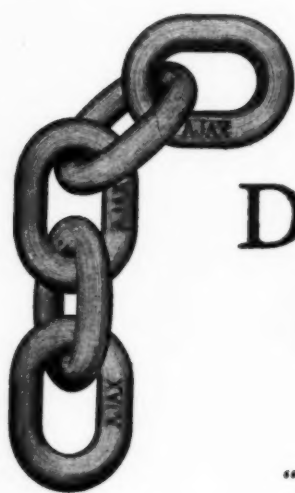
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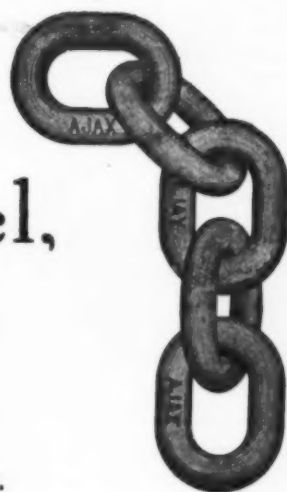
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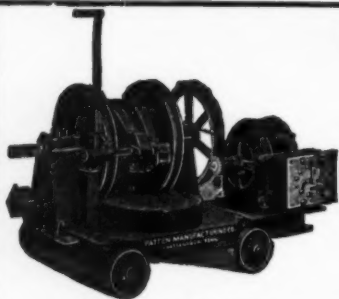
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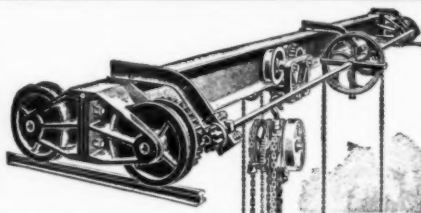
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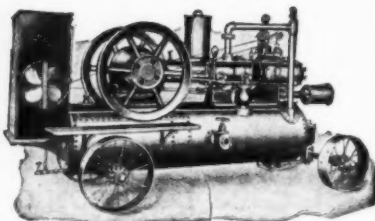
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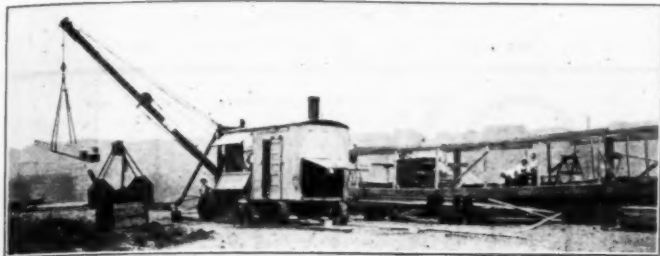
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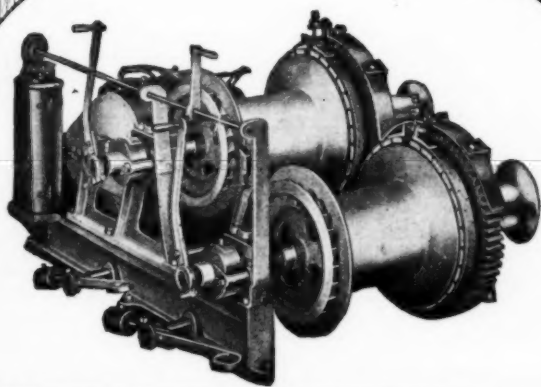
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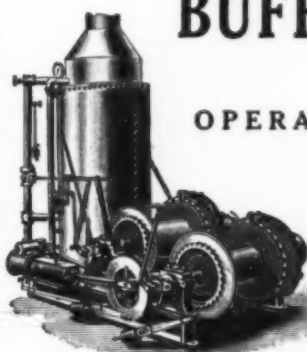
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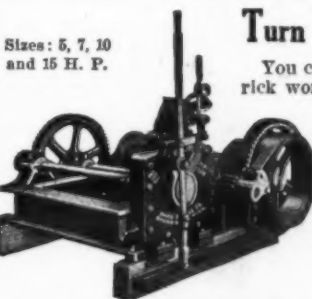
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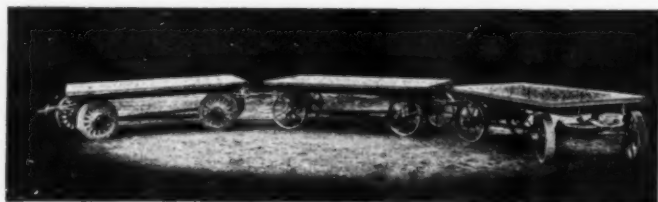
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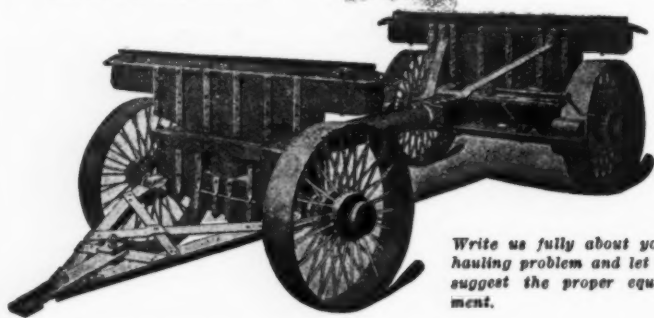
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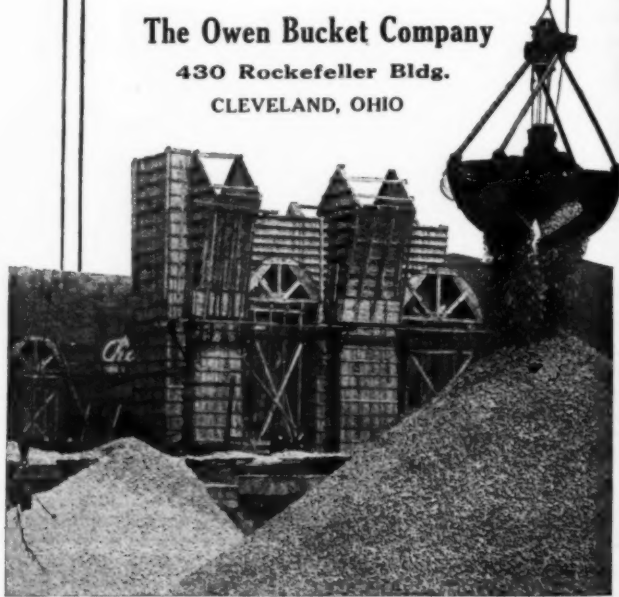
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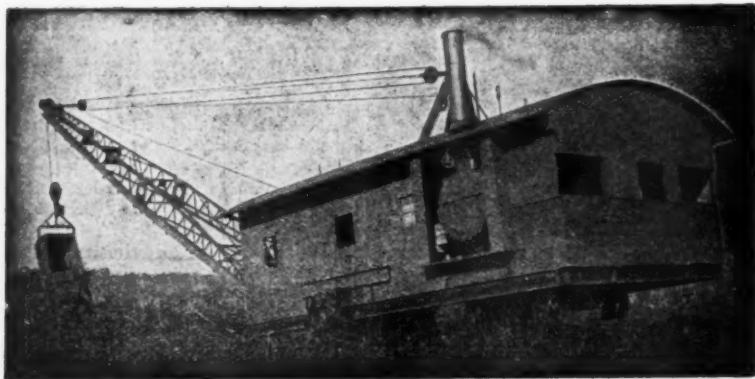
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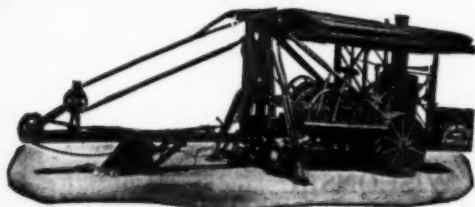
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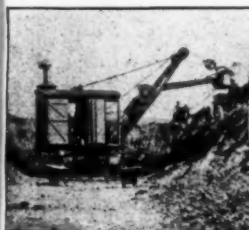
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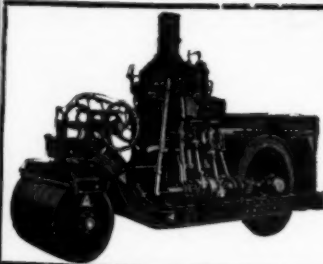
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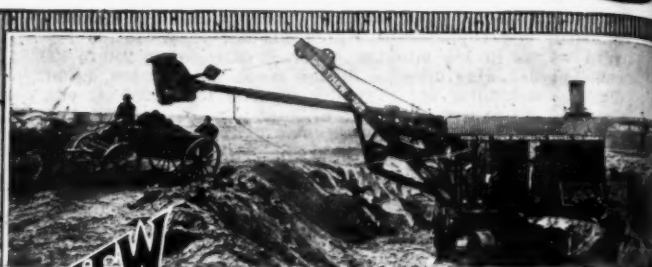
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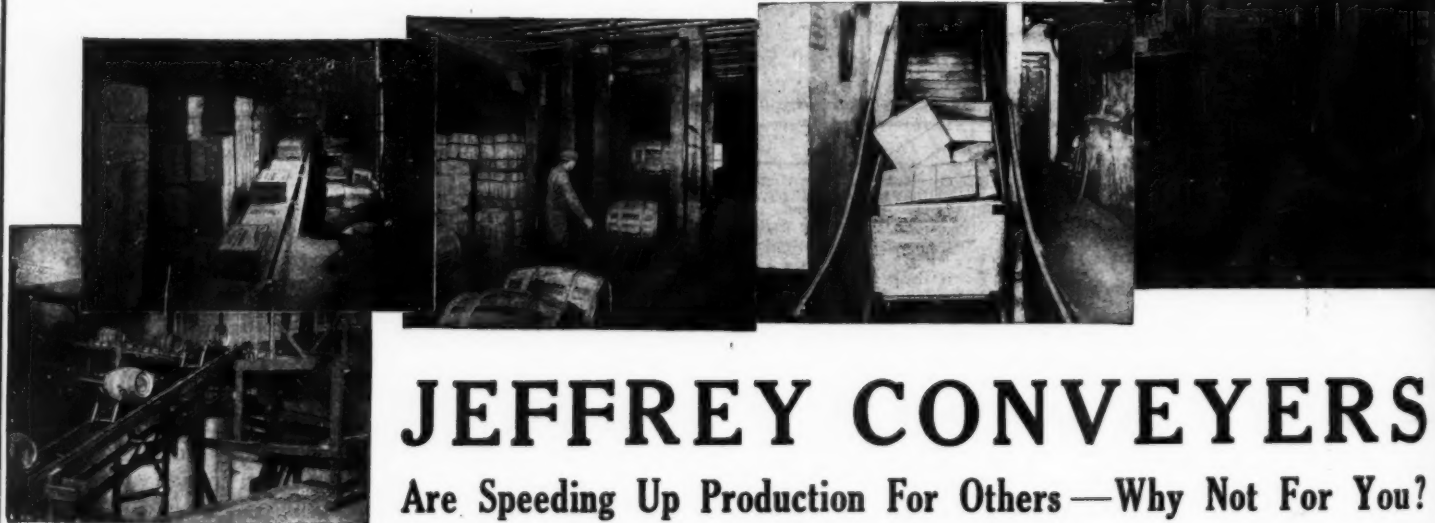
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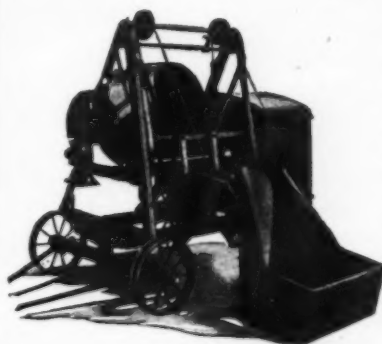
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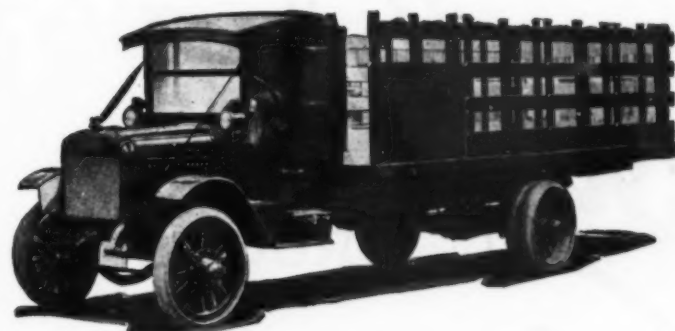
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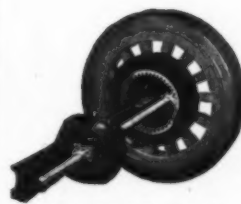
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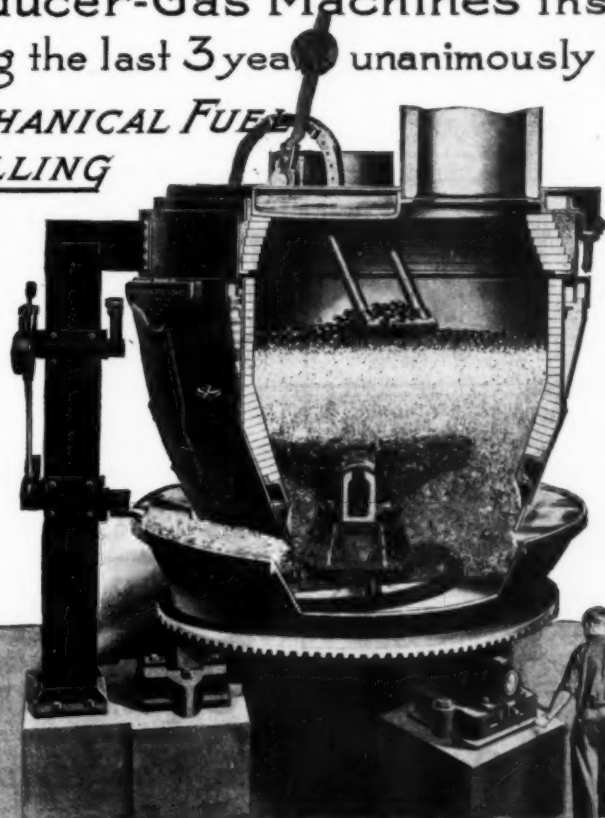


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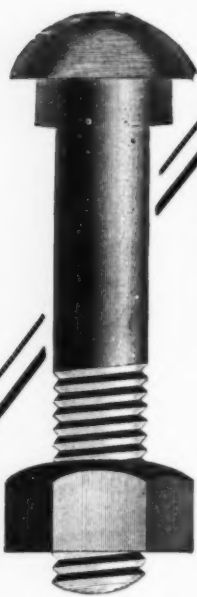
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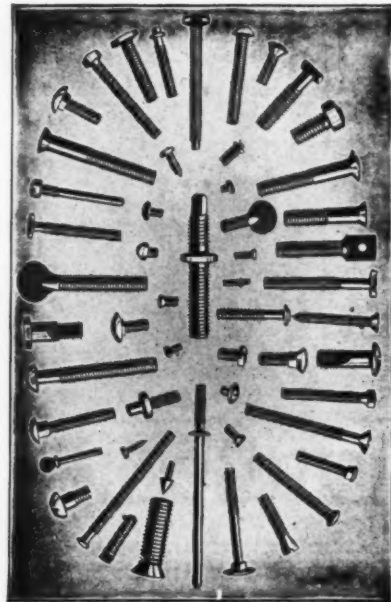
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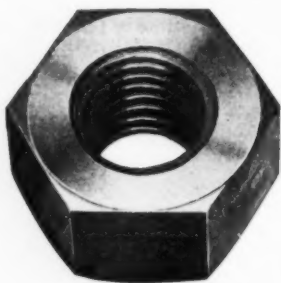
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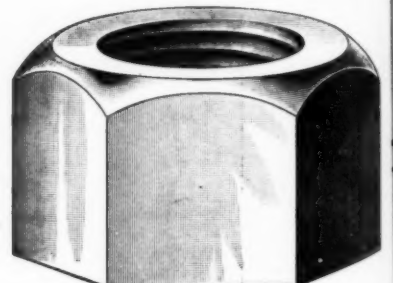
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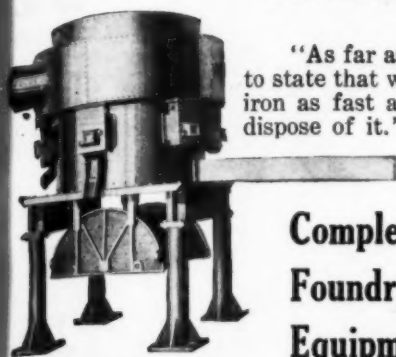
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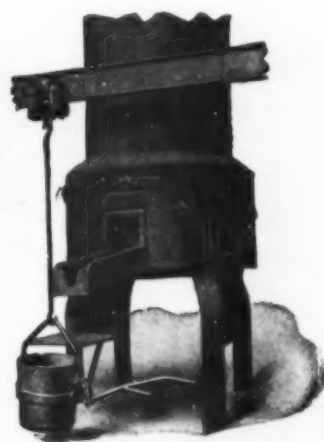
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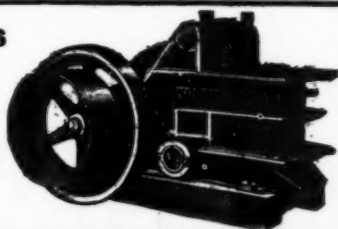
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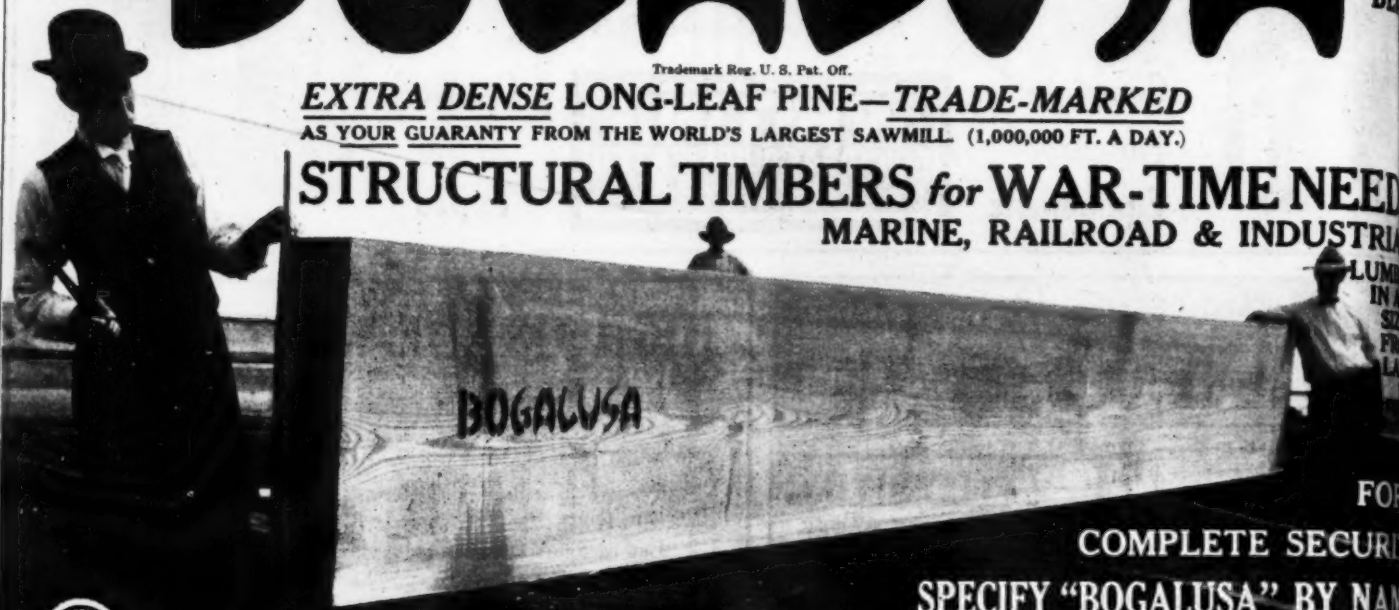
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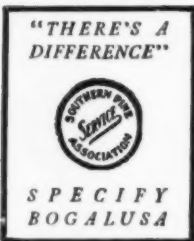


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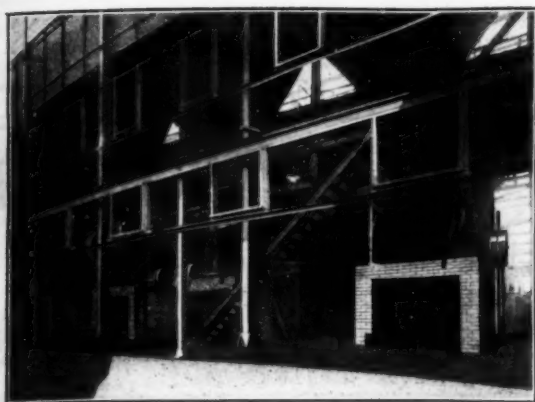
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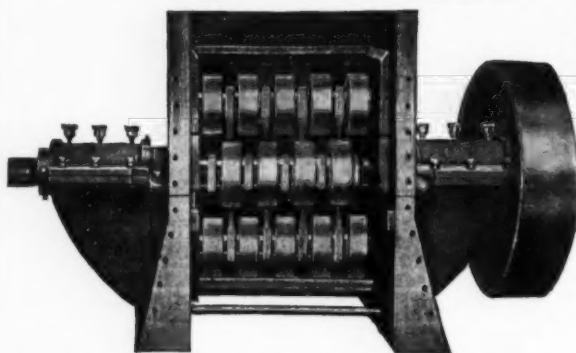
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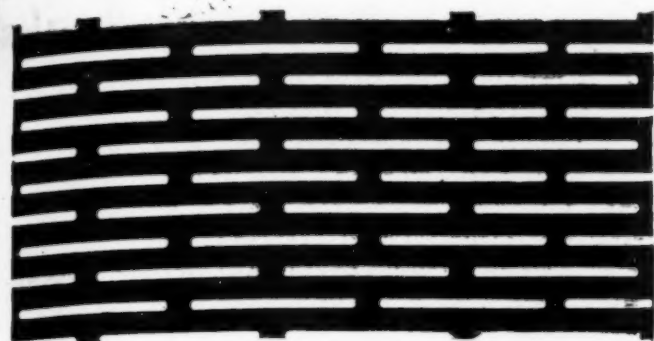
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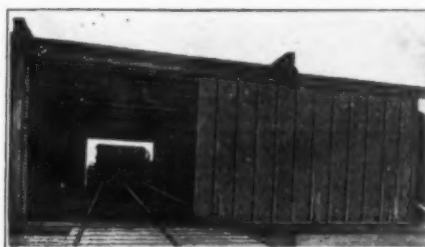
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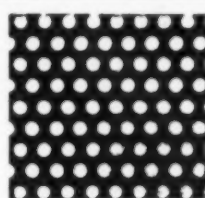
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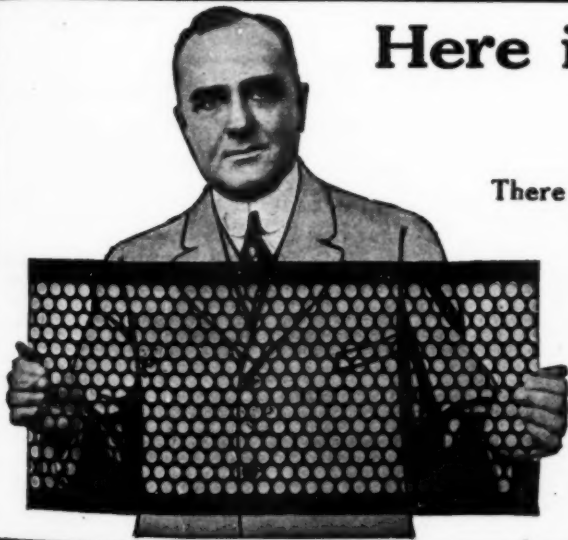
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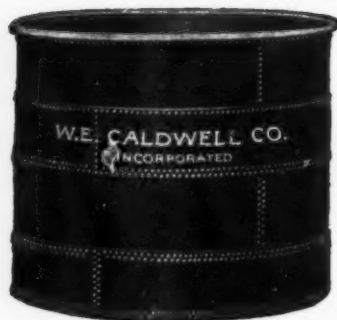
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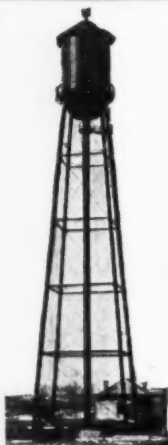
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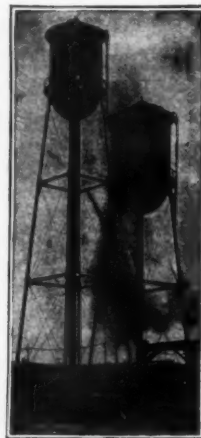
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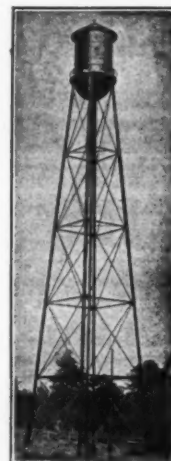
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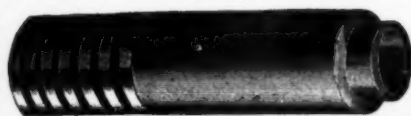
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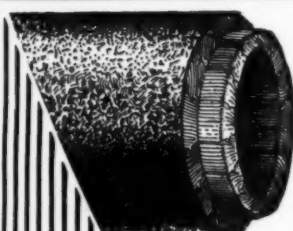


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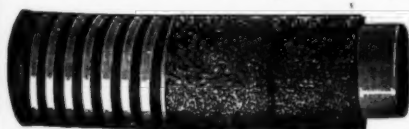
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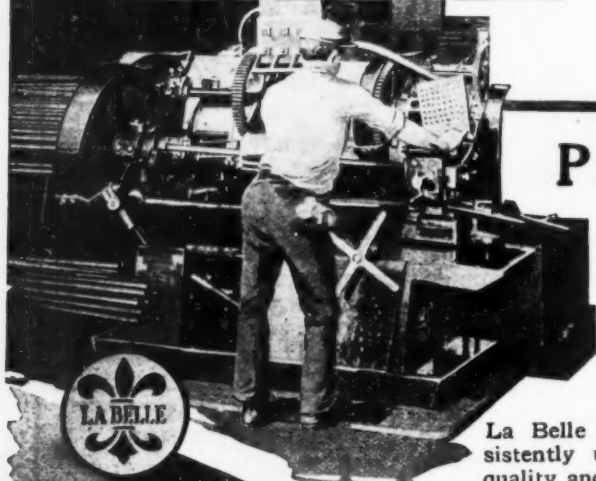
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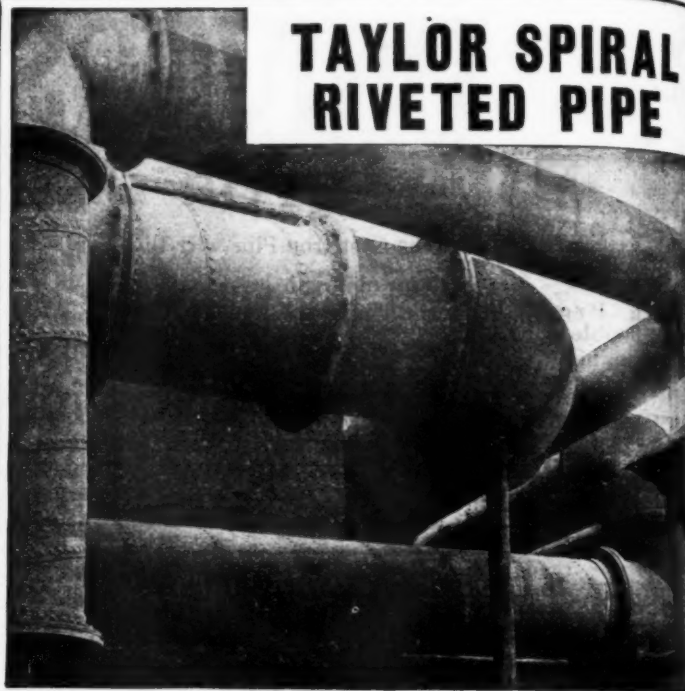
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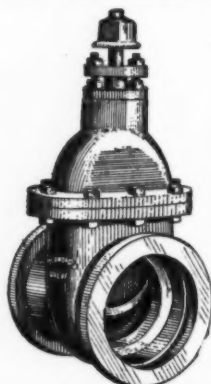


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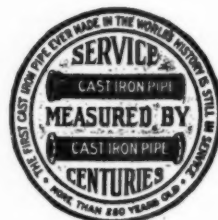
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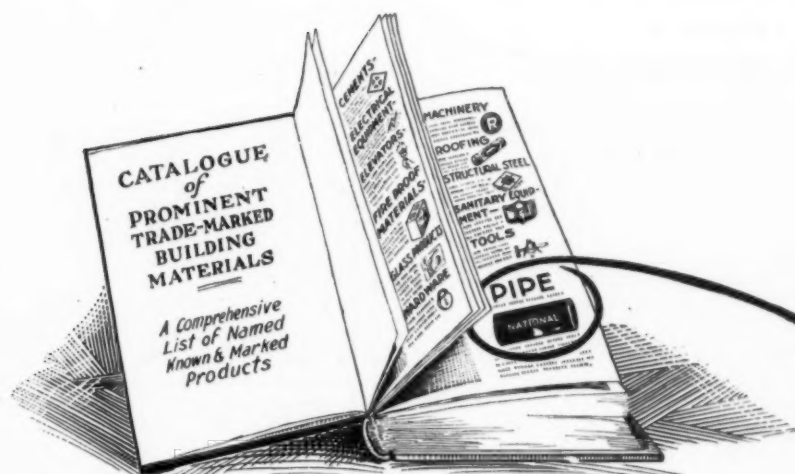
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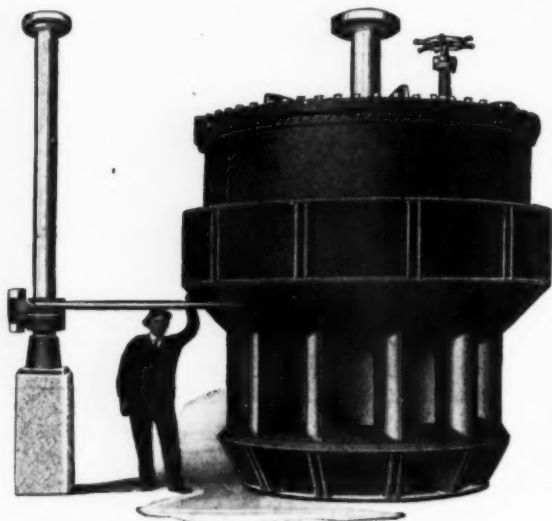
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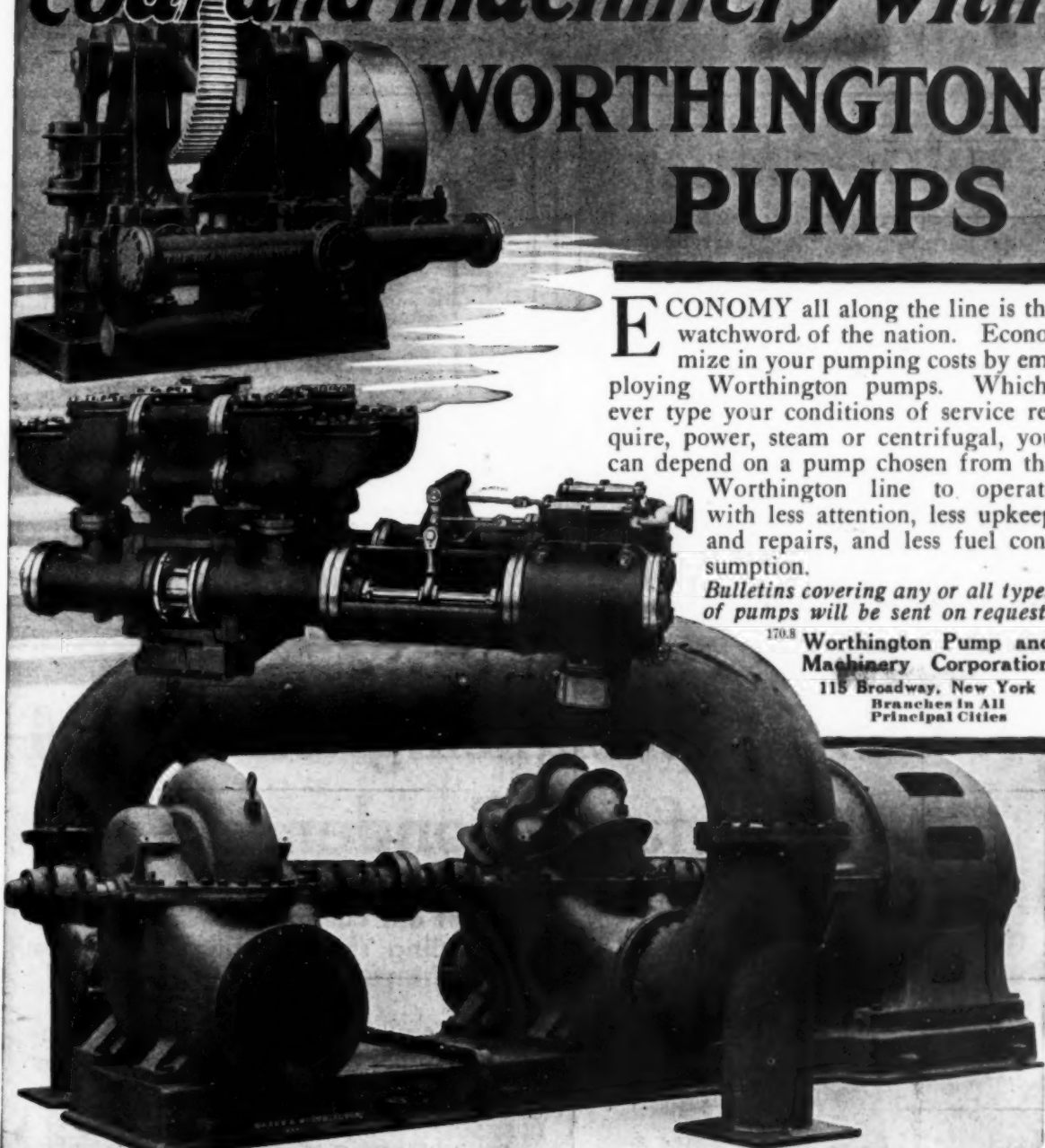
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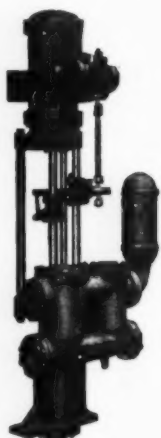
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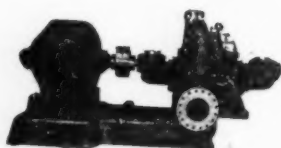
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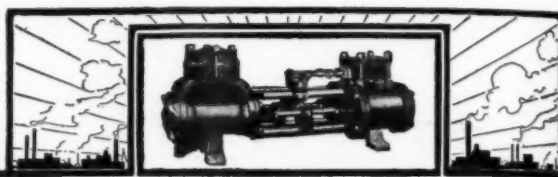
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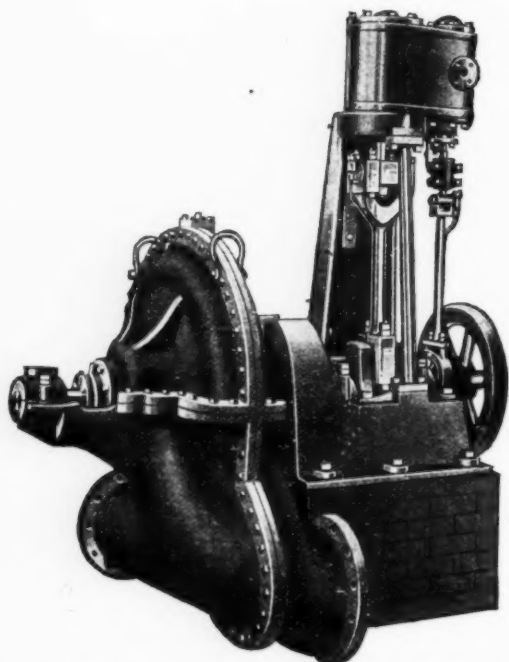
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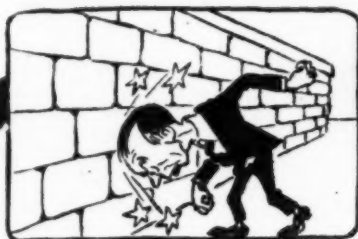
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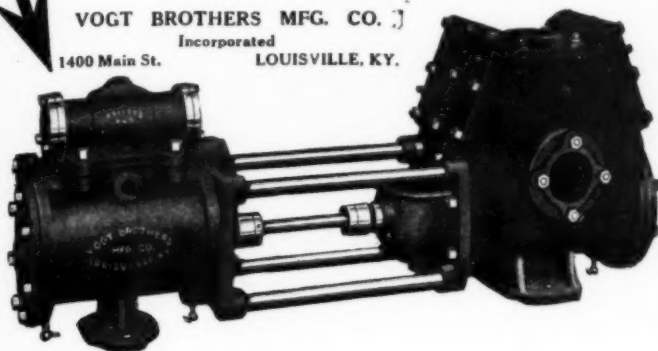
of a man who persisted in banging his head against a stone wall. When asked why he did it, he replied: "Because it feels so good when I stop."

Don't continue using pumps that fail to give complete satisfaction just because you know you can improve conditions if you want to. Install the Reilly Steam Pump *now* and experience that mighty joyous feeling of contentment that comes with dependable, efficient, economical pump service.

And remember that the simple, strong and rugged Reilly Pumps are designed by engineers and *guaranteed* to give satisfaction; otherwise they may be returned at our expense. That's fair, isn't it?

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Continuous High Efficiency in Water-Works Service

In pump building, to furnish a pump that will give high efficiency for a short time is not difficult. It is building a pump that will give steady, unbroken service at its initial high efficiency which requires the greatest skill of care and experience.

CAMERON CENTRIFUGALS

have gained a wide reputation through this quality of continuous high efficiency over long periods of service.

This illustration shows a Cameron No. 10, Class "LT" Multi-stage Centrifugal Pump with a capacity of 2000 gallons per minute against 300 feet head at 1175 R. P. M.

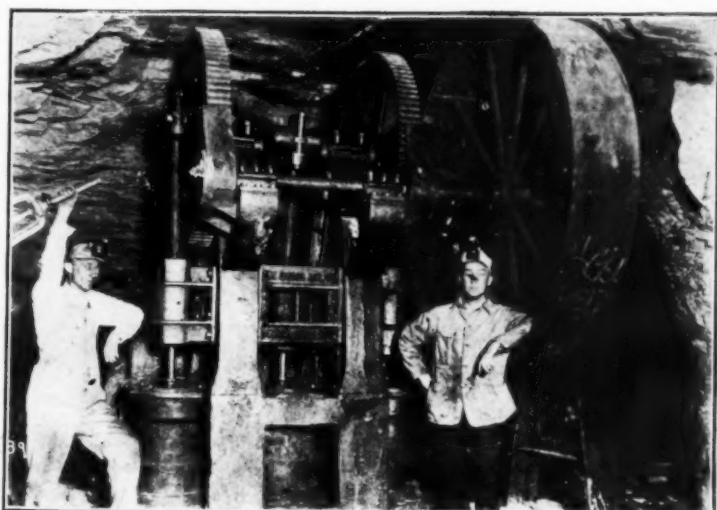
This Cameron pump has been installed in a Connecticut city water-works for the past three years, giving steady service day in and day out at its initial high efficiency.

You can be sure of continuous high efficiency when you install Cameron Centrifugals.

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In Alabama

Like all Goulds Pumps this 1500-gallon, Fig. 1364, size 12-in. x 14-in., Motor-Driven, Double-Acting Triple Piston Pump with Form "E" Drive is doing yeoman duty in one of the Sloss-Sheffield Steel and Iron Co. mines in Alabama. Great volume with unusual operating economy and remarkable freedom from repairs characterize this pump—features of all Goulds Pumps.

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Laid *here* in 1850



WATER PIPES OF 1850, STILL GOOD, ARE RELAID

Cast-Iron Mains Are Little Changed
by Sixty-eight Years Service
Underground

Cast-iron water pipes, after sixty-eight years' service underground, are being relaid on Hamilton street for an indefinite period of service. The other pipes are but little worn, and for all practical purposes are as good as when laid in the spring of 1850.

On November 22, 1849, Councils authorized the water committee to build a pipe line from the old Fairmount water works down Arch street to the Delaware River. The necessary pipe cost \$118,665.34—a mere fraction of the money that would be needed to replace it now. The work was done the following spring, and was the feature of the municipal expenditures that year.

Some weeks ago a relocation of pipes was made necessary by reason of the Parkway plans, and the old thirty-inch cast-iron pipes, made in Camden eleven years before the Civil War, were taken out and found to be well worth relaying. The line on Hamilton street, between Twenty-second and Twenty-fourth streets, is now being altered, and engineers from a number of cities have expressed surprise at the excellent condition of the piping. The pipes were a part of the first eighty miles laid over the city. At present there are more than 1800 miles of water mains in the city.

Philadelphia Evening Ledger,
April 18, 1918.

U. S. Cast Iron Pipe

is the pipe for Service. Glance over that clipping, telling how, 68 years after they laid the line, it was dug up, found perfect and will be relaid again—thereby saving Philly hundreds of thousands of dollars. In other words, this pipe couldn't be replaced now for double what it cost in 1850—and it's as good today as it was then! Mind you, *not one leak* from the Bell-and-Spigot joints—and not more than $\frac{3}{4}$ in. of scale inside, in spite of the years it carried corrosive Schuylkill River water. Just read this lesson of Cast Iron Pipe ECONOMY into your budget.

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Chicago: 122 South Michigan Boulevard.	Cleveland: 1150 E. 26th St.
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and Re-laid in 1918!



Patented Nov. 29, 1892; July 19, 1910.



Grooves Cut with Huther Bros. Dado Head

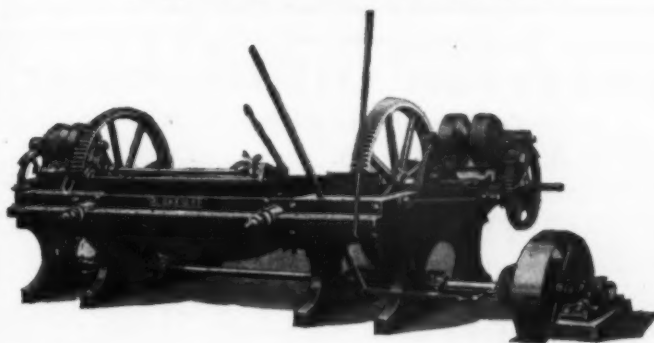
Fits Any Saw Mandrel

A Huther Bros. Dado Head consists of two outside cutters and enough inside cutters to make the required cut. This head will cut perfect grooves, with or across grain, any width. It is an easy Head to keep in perfect condition, has a simple, quick adjustment, and may be enlarged any time after purchase. Sent on approval, and if not satisfactory return at our expense.

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Huther Bros. Saw Mfg. Co., 1110 University Ave. ROCHESTER, N. Y.

"BLAKESLEE"



VENEER LATHE

For the Manufacture of

General Line of Veneers, Box Shooks, Egg Cases, Fruit and Vegetable Packages

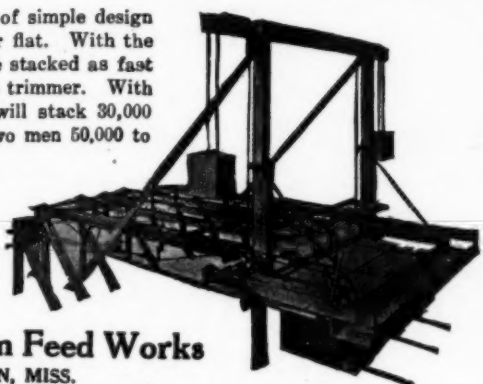
A "Blakeslee" lathe will cut 18,000 to 28,000 ft. Log Scale, according to diameter of blocks, every 10-hour day into $\frac{1}{4}$ " and $\frac{1}{2}$ " Box Shooks, producing them to width, thickness and length in one operation by the use of our special features which increases output and saves labor and material.

American-Blakeslee Mfg. Co.
BIRMINGHAM, ALA., U. S. A.

Soule Simplex Flat Stacker

A perfect machine of simple design for stacking lumber flat. With the Soule, lumber can be stacked as fast as it is sent over the trimmer. With one man operating will stack 30,000 feet per day; with two men 50,000 to 60,000. The many advantages of this stacker will interest you.

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HIGHEST GRADE CLARK LOGGING and SKIDDER BLOCKS

We take pleasure in presenting to the trade the Clark Logging Blocks. We are manufacturing today a full line of "High Grade" steel blocks in the following varieties:

Mechanical Out Haul, Cableway Skidder,
Moving, Yarding, Head Trip,
Tripline, Butt Chain, Fall, Skyline,
Loading and High Lead, in 8 different sizes.

Special Features:

Heat treated special steel new design shackle drop forged.
Heat treated steel shackle pins.
Extra Large Lugs.
Annealed cast steel sides deeply flared with ample throat clearance.
Clark Special Grease Cup. Large oil reservoir in sheave pin.
New feature, extra high-grade phosphor-bronze bushing which cannot turn in the sheave.
Extra large case hardened and heat treated steel bearing pin. More than ample lubrication.

*We Respectfully Solicit Your Future Patronage.
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CLARK BROTHERS CO. - - - Olean, N. Y.

Laid *here* in 1850



WATER PIPES OF 1850, STILL GOOD, ARE RELAID

Cast-Iron Mains Are Little Changed
by Sixty-eight Years Service
Underground

Cast-iron water pipes, after sixty-eight years' service underground, are being relaid on Hamilton street for another indefinite period of service. The pipes are but little worn, and for all practical purposes are as good as when laid in the spring of 1850.

On November 22, 1849, Councils authorized the water committee to build a pipe line from the old Fairmount water works down Arch street to the Delaware River. The necessary pipe cost \$118,665.34—a mere fraction of the money that would be needed to replace it now. The work was done the following spring, and was the feature of the municipal expenditures that year.

Some weeks ago a relocation of pipes was made necessary by reason of the Parkway plans, and the old thirty-inch cast-iron pipes, made in Camden eleven years before the Civil War, were taken out and found to be well worth relaying. The line on Hamilton street, between Twenty-second and Twenty-fourth streets, is now being altered, and engineers from a number of cities have expressed surprise at the excellent condition of the piping. The pipes were a part of the first eighty miles laid over the city. At present there are more than 1800 miles of water mains in the city.

Philadelphia Evening Ledger.
April 18, 1918.

U. S. Cast Iron Pipe

is the pipe for Service. Glance over that clipping, telling how, 68 years after they laid the line, it was dug up, found perfect and will be relaid again—thereby saving Philly hundreds of thousands of dollars. In other words, this pipe couldn't be replaced now for double what it cost in 1850—and it's as good today as it was then! Mind you, *not one leak* from the Bell-and-Spigot joints—and not more than $\frac{3}{4}$ in. of scale inside, in spite of the years it carried corrosive Schuylkill River water. Just read this lesson of Cast Iron Pipe ECONOMY into your budget.

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Grooves Cut with Huther Bros. Dado Head

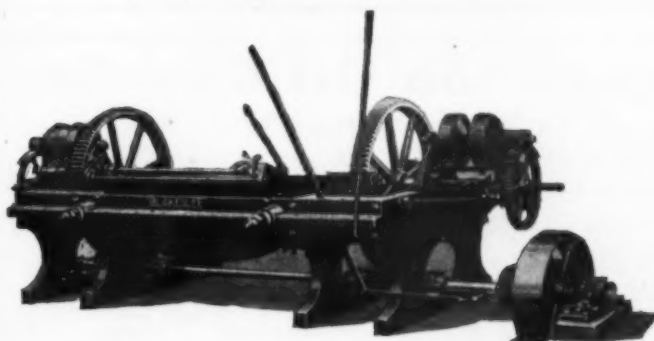
Fits Any Saw Mandrel

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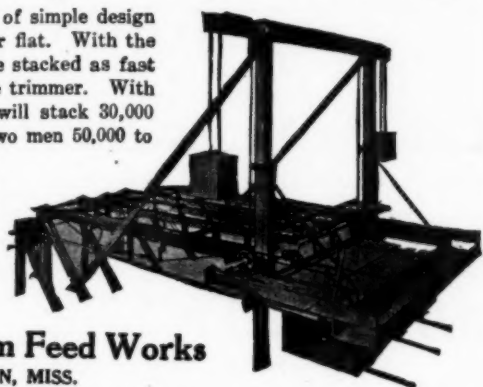
A "Blakeslee" lathe will cut 18,000 to 28,000 ft. Log Scale, according to diameter of blocks, every 10-hour day into $\frac{1}{4}$ " and $\frac{1}{2}$ " Box Shooks, producing them to width, thickness and length in one operation by the use of our special features which increases output and saves labor and material.

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Soule Simplex Flat Stacker

A perfect machine of simple design for stacking lumber flat. With the Soule, lumber can be stacked as fast as it is sent over the trimmer. With one man operating will stack 30,000 feet per day; with two men 50,000 to 60,000. The many advantages of this stacker will interest you.

All told in our catalog. Write for a copy today.



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MERIDIAN, MISS.

HIGHEST GRADE CLARK LOGGING and SKIDDER BLOCKS

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Mechanical Out Haul, Cableway Skidder,
Moving, Yarding, Head Trip,
Tripline, Butt Chain, Fall, Skyline,
Loading and High Lead, in 8 different sizes.

Special Features:

Heat treated special steel new design shackle drop forged.

Heat treated steel shackle pins.

Extra Large Lugs.

Annealed cast steel sides deeply flared with ample throat clearance.

Clark Special Grease Cup. Large oil reservoir in sheave pin.

New feature, extra high-grade phosphor-bronze bushing which cannot turn in the sheave.

Extra large case hardened and heat treated steel bearing pin. More than ample lubrication.

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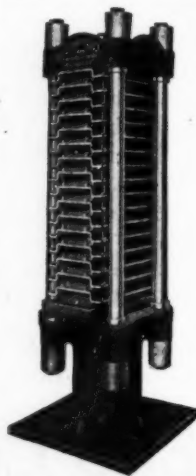
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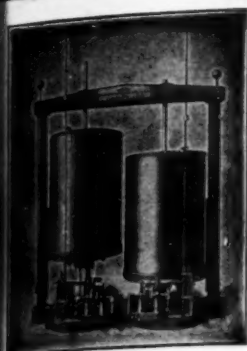
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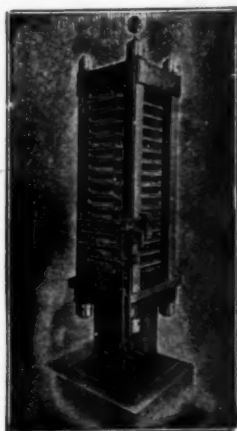
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Dust and dirt that blow in from the streets in summer, and the cold and discomfort that accompany open window drafts in winter time, are the obvious drawbacks to this "good" old-fashioned way of getting fresh air.

Most important of all, though, in that it directly and adversely affects the output and quality of your mill product, is the loss in humidity, or change in humidity, that window ventilation causes.

The Carrier System of temperature and humidity control with windows closed will give you fresh, clean air all the year round at just the right humidity regardless of the season or of outside weather conditions.

Textile and other mills all the way from South Carolina to Quebec are using the Carrier System to maintain uniform temperature and humidity alike in summer and winter.

What the Carrier System will do for you in maintaining your output from year's end to year's end, and in making your mill a preferred place to work, our engineers will be glad to explain.

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The mill having Common looms that does not lay aside a part of its war profits to provide a Northrop Loom equipment is failing in its duties to its Stockholders

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Georgia & Florida Railway Augusta Southern Railroad

Penetrating Georgia's most attractive agricultural domain. Georgia's choicest quality farm lands with thousands of acres cut-over lands adapted to the production of livestock. High in quality—low in price.

It is here along the Georgia & Florida Railway line where the commencement is now being made, creating the much advertised standardized farm movement. As a result of this movement, attractive as it is, many thousand acres are expected to be transformed from a cut-over state to choice producing farms.

Standardized farms under the Georgia & Florida Railway plan, each has a neat, comfortable bungalow, a good barn, a portion of the land in crop, a water supply, flowers and fruit trees. A perfect home is prepared for the homeseeker. His success is assured. Healthy and a pleasant climate are two important blessings which nature has provided in this section of the State.

The heart of Georgia, the bread-basket of the Southeast, offers both large and small land investors an opportunity to place his money in good land that will increase in value.

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Acid-Proof Brick

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There is a demand for these products in the South much greater than the supply. There is only one plant in the South, in Tennessee, manufacturing these types of materials. There is not only a large demand in the South where chemical industries are rapidly developing, but in the North and East and Middle West.

Along the Central of Georgia Railway there are deposits of shales which, from expert examination, analyses and tests, have been found unlimited in quantity, of high grade and especially suited for making these products.

Authoritative information available relative to tonnage and character of shales by our Geologist, Dr. T. Poole Maynard. Samples of shales collected by Dr. Maynard were submitted to Professor Ries of Cornell University for testing.

PHYSICAL PROPERTIES OF THESE SHALES:

Requires little water for mixing, approximately 20 per cent., resulting in a mass of good plasticity. Molds without difficulty. Tensile strength when air-dried, forty pounds to the square inch. Air shrinkage low, 3.3 per cent. Product vitrifies and becomes steel hard at 1150 degrees C. Fire shrinkage only 4.0 per cent.

— OUR ADVANTAGES FOR THESE INDUSTRIES ARE: —

- 1—Suitable shales of unlimited tonnage.
- 2—Shales located directly on the Central of Georgia Railway, in the Birmingham District, where there is also a large local market.
- 3—Fuel (coal) of excellent grade in immediate proximity.
- 4—Markets, large, not only in the South, but in the East and Middle West.
- 5—Labor obtained at a reasonable price.
- 6—Climate equitable, makes possible running 52 weeks in the year.

Detailed information on request. Refer to File 17428.

J. M. MALLORY, Industrial Agent

Central of Georgia Railway
Savannah, Georgia

Hydro-Electric Power In the Clinchfield Territory

The subject of water-power development on **navigable** streams and on Government **reserves** is attracting the attention of the whole country. It is an important matter, and should receive immediate consideration.

But the **electro-chemical** and **other manufacturing** concerns of the Eastern portion of the United States must look to the **non-navigable**, swift mountain streams to furnish **hydro-electric power** for their needs. In the rivers of the Clinchfield Territory **thousands** of **horse power** can be developed at a very **reasonable** initial cost.

There are **three** important **factors** that should influence the development of the water power along the Clinchfield at this time.

FIRST: The ever increasing cost of producing steam power.

SECOND: The many raw materials available in the Clinchfield Territory which are of great importance to industries using hydro-electric power.

THIRD: The extremely favorable conditions for manufacturing purposes.

The Industrial Department of the Carolina, Clinchfield and Ohio Railway has made a general investigation and estimate of the most promising water-power sites, and such data as has been compiled will be furnished to those interested.

For Complete Information Address

Carolina, Clinchfield and Ohio Railway
JOHNSON CITY, TENNESSEE

The Nation's Supply of Livestock Is Being Rapidly Diminished

An examination of livestock figures, comparing the resources of the country today with those of previous years, is startling.

The following table indicates that, with an increase of population in the United States, between 1900 and 1918, of nearly 40 per cent., the number of cattle, sheep and hogs shows a serious decline:

TOTAL NUMBER OF MEAT ANIMALS IN THE UNITED STATES.

	1918. Jan. 1 estimate.	1900 Census.
Milch cows.	23,284,000	17,135,633
Other cattle.	43,546,000	50,585,777
Sheep.	48,900,000	61,503,713
Swine.	71,374,000	62,868,041
Total meat animals.	187,104,000	192,093,164

The population of this country has increased from 75,000,000 in 1900 to 105,000,000 in 1918.

In considering the above and bearing in mind that it is necessary to send vast quantities of meat products abroad for our Allies, as well as for our fighters on the battlelines of Europe, the supreme need of bending every energy to add to our meat resources is readily seen.

This message cannot be delivered too strongly. It is absolutely vital to the life of the Nation. We are called upon to feed not only ourselves, but our Allies and our own fighting men.

In Florida there are great areas of idle land where livestock can be grazed twelve months in the year, and where, because of the ideal climate, no expensive housing is required. Florida presents an opportunity to the raiser of livestock which should not be overlooked.

We will be glad to supply information.

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Rollins Chemical Co., Inc., Charleston, W. Va.

BAR BENDERS.
Koehring Machine Co., Milwaukee, Wis.
BAR CUTTERS.
Koehring Machine Co., Milwaukee, Wis.
BAR IRON. (Reduced and Galvanized.)
Aborn Steel Co., New York, N. Y.
Ames & Co., W. Jersey City, N. J.
Bourne-Fuller Co., The, Cleveland, Ohio.
Carnegie Steel Co., Pittsburgh, Pa.
Lackawanna Steel Co., Lackawanna, N. Y.
Schaper Const. Material Co., New York, N. Y.
BARS.
RAIL SPICER.
Ames & Co., W. Jersey City, N. J.
STEEL ROUNDS, FLATS AND SQUARES.
Aborn Steel Co., New York, N. Y.
Camden Forge Co., Camden, N. J.
Concrete Steel Co., New York, N. Y.
Gulf States Steel Co., Birmingham, Ala.
Sweet's Steel Co., Williamsport, Pa.
Trumbull Steel Co., Warren, Ohio.
BARS, WIRE, WIRE FABRIC, ETC. (For Reinforced Concrete.)
Cincinnati Iron & Steel Co., Cincinnati, Ohio.
Crescent Steel Co., New York, N. Y.
Corrugated Bar Co., Buffalo, N. Y.
General Fireproofing Co., Youngstown, Ohio.
Hoffman & Co., R. C., Inc., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Laclede Steel Co., St. Louis, Mo.
Truscon Steel Co., Youngstown, Ohio.
BAUXITE.
Southern Minerals Corp., Boston, Mass.
BEARINGS.
BRASS AND BRONZE.
Edna Brass Mfg. Co., Cincinnati, Ohio.
GRAPHITE AND BRONZE.
Bound Brook Oil-less Brng. Co., Bound Brook, N. J.
OILLESS.
Bound Brook Oil-less Brng. Co., Bound Brook, N. J.
Metaline Co., Long Island City, N. Y.
ROLLER.
Hyatt Roller Bearing Co., New York, N. Y.
BELTING.
LEATHER, CANVAS, RUBBER.
Bailey-Lebby Co., Charleston, S. C.
Baltimore Belting Co., Baltimore, Md.
Bradford Belting Co., Cincinnati, Ohio.
Chesapeake Belting Co., Baltimore, Md.
Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.
Druid Oak Belting Co., Inc., Baltimore, Md.
Gandy Belting Co., Baltimore, Md.
Goodrich Co., B. F., Akron, Ohio.
Goodyear Tire & Rubber Co., Akron, Ohio.
Graton & Knight Mfg. Co., Worcester, Mass.
Main Belting Co., Philadelphia, Pa.
Schieren Co., Chas. A., New York, N. Y.
Smith-Courtney Co., Richmond, Va.
CHAIN.
Caldwell & Son Co., H. W., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, Ohio.
Link-Belt Co., Philadelphia, Pa.
Morse Chain Co., Ithaca, N. Y.
BELT CEMENT.
Du Pont de Nemours & Co., E. I., Wilm'ton, Del.
Graton & Knight Mfg. Co., Worcester, Mass.
Schieren Co., Chas. A., New York, N. Y.
BELT CONVEYORS.
Alvey-Ferguson Co., Inc., Cincinnati, Ohio.
Burlitt & Snow Co., The, C. O., Cleveland, O.
Jeffrey Mfg. Co., Columbus, Ohio.
Robins Conveying Belt Co., New York, N. Y.
Webster Mfg. Co., Tiffin, Ohio.
BELT DRESSING.
Dixon Crucible Co., Joseph, Jersey City, N. J.
Gandy Belting Co., Baltimore, Md.
Graton & Knight Mfg. Co., Worcester, Mass.
Schieren Co., Chas. A., New York, N. Y.
BELT LACING. (Leather.)
Graton & Knight Mfg. Co., Worcester, Mass.
Schieren Co., Chas. A., New York, N. Y.
BERTHS AND BUNKS. (For Ships and Contrs.)
Southern-Rome Co., Baltimore, Md.
BICARBONATE SODA. (Sap Stain Lmbr. Dip.)
Church & Dwight Co., New York, N. Y.
Du Pont de Nemours & Co., E. I., Wilm'ton, Del.
BILLETS. (Basic Open Hearth.)
Atlantic Steel Co., Atlanta, Ga.
Gulf States Steel Co., Birmingham, Ala.
BLANC FIXE.
Rollins Chemical Co., Inc., Charleston, W. Va.
BLEACHING MATERIALS.
Wolf & Co., Jacques, Passaic, N. J.
BLOCKS.
CHAIN.
Wright Mfg. Co., Lisbon, Ohio.
PAVING CEMENTED.
American Cressco Works, New Orleans, La.
BLOCK FILERS. (Paving.)
Barrett Co., New York, N. Y.
Standard Oil Co. of La., Baton Rouge, La.
BLOWERS AND EXHAUST FANS.
Buffalo Forge Co., Buffalo, N. Y.
Clara Fan Co., Kalamazoo, Mich.
Clinton-Frait Co., The, Cincinnati, Ohio.
Duriron Castings Co., Dayton, Ohio.
General Electric Co., Schenectady, N. Y.
Green Fuel Economizer Co., New York, N. Y.
National Blow Pipe & Mfg. Co., New Orleans, La.
BLOW PIPES.
National Blow Pipe & Mfg. Co., New Orleans, La.
Shreveport Blow Pipe & S. I. Wks., Shreveport, La.
BOILERS.
Abendroth & Root Mfg. Co., Newburgh, N. Y.
Ames Iron Works, Oswego, N. Y.
Babcock & Wilcox Co., New York, N. Y.
Cape Fear Machine Works, Wilmington, N. C.
Casey-Hedges Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Coatesville Boiler Works, Coatesville, Pa.
Davis, J. F., Chicago, Ill.
Erie City Iron Works, Erie, Pa.
Harris Bros. Co., Chicago, Ill.
Hartley Boiler Works, Montgomery, Ala.
Houston, Stanwood & Gamble Co., The, Cinn., O.
Lombard Iron Works, Augusta, Ga.
Lombard Boiler & Mfg. Co., Chattanooga, Tenn.
Machinery Utilities Co., New York, N. Y.
Maisy Machine Co., Jacksonville, Fla.
Mecklenburg Iron Works, Charlotte, N. C.
Murray Iron Works Co., Burlington, Iowa.
Schofield Iron Works, Macon, Ga.
Southern Boiler & Tank Works, Memphis, Tenn.
Union Iron Works, Erie, Pa.
Valik & Murdoch Co., Charleston, S. C.
Vogt Machine Co., Inc., Henry, Louisville, Ky.
Walsh & Weidner Boiler Co., Chattanooga, Tenn.
Zelnicker Supply Co., Walter A., St. Louis, Mo.
BOILER COVERINGS.
Magnesia Association of America, Phila., Pa.
BOILER GRAPHITE.
Dixon Crucible Co., Joseph, Jersey City, N. J.
BOILER SEAM PROTECTOR.
National Boiler Protector Co., Dayton, Ohio.
BOLTS, NUTS, RIVETS, STUDS, WASHERS.
Ames & Co., W. Jersey City, N. J.
Bethlehem Steel Co., South Bethlehem, Pa.
Fishel & Marks, Cleveland, Ohio.
Frank, Jr., Henry, New York, N. Y.
Hoffman & Co., R. C., Inc., Baltimore, Md.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Milton Mfg. Co., Milton, Pa.
Progressive Mfg. Co., Torrington, Conn.
Republic Iron & Steel Co., Youngstown, Ohio.

Russell, Burdall & Ward Bolt and Nut Co., Port Chester, N. Y.
Schaper Const. Material Co., New York, N. Y.
Stimpson Co., Edwin B., Brooklyn, N. Y.
St. Louis Screw Co., St. Louis, Mo.
Topping Bros., New York, N. Y.
BOLT AND NUT MACHINERY.
Webster & Perkins Tool Co., The, Springfield, O.
BOND BUYERS.
Hanchett Bond Co., The, Chicago, Ill.
Hornblower & Weeks, New York, N. Y.
Mercantile Trust & Deposit Co., Baltimore, Md.
Mississippi Valley Trust Co., St. Louis, Mo.
Nuveen & Co., Chicago, Ill.
Powell, Garard & Co., Chicago, Ill.
Spitzer & Co., Sidney, Toledo, Ohio.
Slayton & Co., W. L., Toledo, Ohio.
BONDS. (Surety, etc.)
Fidelity & Deposit Co., Md., Baltimore, Md.
BORONIC-OP. FOR GOLD & SILVER. (Shot.)
American Boron Products Co., Reading, Pa.
BORONIC-ALLOYING. (Shot.)
American Boron Products Co., Reading, Pa.
BOTTLING OUTFITS.
Viller Mfg. Co., Milwaukee, Wis.
BRASS GOODS.
Bailey-Lebby Co., Charleston, S. C.
Buckeye Iron & Brass Works, Dayton, Ohio.
Frank, Jr., Henry, New York, N. Y.
Lunkelmeier Co., The, Cincinnati, Ohio.
Midvale Brass Works, The, Ft. Worth, Texas.
BRASS RAILING AND GRILLES.
Ludlow-Saylor Wire Co., St. Louis, Mo.
BREWERS' MACHINERY.
Viller Mfg. Co., Milwaukee, Wis.
BRICK.
ACID.
Hood Brick Co., B. Miffin, Atlanta, Ga.
COMMON.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
Georgia-Carolina Brick Co., Augusta, Ga.
Kingsport Brick Corp., Kingsport, Tenn.
ENAMELED.
Am. Enamelled Brick & Tile Co., New York, N. Y.
FACED.
Am. Enamelled Brick & Tile Co., New York, N. Y.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
Georgia-Carolina Brick Co., Augusta, Ga.
Glasgow Clay Products Co., New York, N. Y.
Hood Brick Co., B. Miffin, Atlanta, Ga.
Hydraulic Press Brick Co., St. Louis, Mo.
Kingsport Brick Corp., Kingsport, Tenn.
Standard Brick Co., Macon, Ga.
FIRE.
Am. Enamelled Brick & Tile Co., New York, N. Y.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
Louisville Fire Brick Wks., Inc., Highland Pk., Ky.
Standard Brick Co., Macon, Ga.
Stevens Bros. Co., Stevens Point, Ga.
Union Mining Co., Mt. Savage, Md.
PAVING.
Georgia-Carolina Brick Co., Augusta, Ga.
Standard Brick Co., Macon, Ga.
BRICK & CLAYWORK'S MCH. & SUPPLIES.
Chase Fdry. & Mfg. Co., Columbus, Ohio.
Fennel Bros. Brick Machinery Co., St. Louis, Mo.
Freese & Co., E. M., Galion, Ohio.
Steele & Sons, J. C., Statesville, N. C.
BRIDGES.
CONCRETE.
Blodgett Construction Co., Shreveport, La.
Foundation Co., The, New York, N. Y.
STEEL.
American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Blodgett Construction Co., Shreveport, La.
Champion Bridge Co., Wilmington, Ohio.
Chesapeake Iron Works, Baltimore, Md.
Foundation Co., The, New York, N. Y.
International Steel & Iron Co., Evansville, Ind.
Richmond Structural Steel Co., Richmond, Va.
Vincennes Bridge & Iron Co., Roanoke, Va.
BRIDGE AND STRUCTURAL IRON PAINTS.
Chattanooga Paint Co., Chattanooga, Tenn.
BRIMSTONE.
Freeport Sulphur Co., Freeport, Texas.
BUCKETS.
CLAY SHELL.
Buffalo Holst & Derrick Co., New York, N. Y.
Hais Mfg. Co., Inc., Geo., New York, N. Y.
Hayward Co., The, New York, N. Y.
Owen Bucket Co., The, Cleveland, Ohio.
DREDGING, EXCAVATING, SEWER, ETC.
Buffalo Holst & Derrick Co., New York, N. Y.
Hais Mfg. Co., Inc., Geo., New York, N. Y.
Hayward Co., The, New York, N. Y.
Inley Mfg. Co., Indianapolis, Ind.
Monaghan Machine Co., Chicago, Ill.
Owen Bucket Co., The, Cleveland, Ohio.
GRAB.
Hunt Co., Inc., C. W., West New Brighton, N. Y.
Link-Belt Co., Philadelphia, Pa.
ORANGE PEEL.
Hayward Co., The, New York, N. Y.
ORE HANDLING.
Caldwell & Son Co., H. W., Chicago, Ill.
Hayward Co., The, New York, N. Y.
BUHR STONES.
Starr Co., B. F., Baltimore, Md.
BUILDERS AND CONTRACTORS.
Austin Co., The, Cleveland, Ohio.
Foundation Co., The, New York, N. Y.
Stone & Webster, Boston, Mass.
White Companies, J. G., New York, N. Y.
BUILDINGS. (Pressed Steel.)
Steel Fabricating Co., Chicago Heights, Ill.
Truscon Steel Co., Youngstown, Ohio.
BUILDING SUPPLIES.
Harris Bros. Co., Chicago, Ill.
Ind. Limestone Quarriesmen's Assn., Bedford, Ind.
BUNKS. (For Contractors.)
Southern-Rome Co., Baltimore, Md.
BUSHINGS. (Graphite, Bronze and Wood.)
Bound Brook Oil-less Brng. Co., Bound Brook, N. J.
BUSHINGS. (Oilless.)
Bound Brook Oil-less Brng. Co., Bound Brook, N. J.
Metaline Co., Long Island City, N. Y.
BY-PRODUCTS COKE AND GAS OVENS.
Koppers Co., H., Pittsburgh, Pa.
CABLES. (Copper Wire, etc.)
Broderick & Bascom Rope Co., St. Louis, Mo.
CABLES AND WIRES. (Electric.)
American Steel & Wire Co., Chicago, Ill.
Electric Cable Co., The, New York, N. Y.
McElhugh, John F., New York, N. Y.
Rehling's Son Co., John A., Trenton, N. J.
CABLEWAYS. (Overhead, Suspension.)
Broderick & Bascom Rope Co., St. Louis, Mo.
Flory Mfg. Co., S., Bangor, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
CALCULATING MACHINES.
Barrett Adding Machine Co., Philadelphia, Pa.
CAN AND BOX MAKING MACHINERY. (Tin.)
Ams Machine Co., Max, Bridgeport, Conn.
Bliss Co., E. W., Brooklyn, N. Y.
CANVAS PRESERVATIVE AND WATER-PROOFING.
Robeson Preserve Products Co., Port Huron, Mich.

CARS. (Dump, Industrial, Locomotive.)
Austin Mfg. Co., Chicago, Ill.
Chase Fdry. & Mfg. Co., Columbus, Ohio.
Electric Wheel Co., Quincy, Ill.
Georgia Car & Locomotive Co., Atlanta, Ga.
Hunt Co., C. W., Inc., West New Brighton, N. Y.
Inley Manufacturing Co., Indianapolis, Ind.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Light Railway Equipment Co., Columbus, Ohio.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Western Wheeled Scraper Co., Ames, Iowa.
Whiting Foundry Equipment Co., Hartford, Conn.
CAR UNLOADERS.
Bonney Supply Co., Inc., Rochester, N. Y.
Portable Machinery Co., Inc., Passaic, N. J.
CAR WHEELS, AXLES AND TRUCKS.
Carnegie Steel Co., Pittsburgh, Pa.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
CASTERS.
Hamilton Caster & Mfg. Co., The, New York, N. Y.
CASTINGS.
ALLOY STEEL.
Warren Steel Casting Co., St. Louis, Mo.
ALUMINUM.
Aluminum Company of America, Pittsburgh, Pa.
BRASS AND BRONZE.
Bethlehem Steel Co., South Bethlehem, Pa.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
Edna Brass Mfg. Co., Cincinnati, Ohio.
McKenna Brass & Mfg. Co., Inc., Philadelphia, Pa.
Salem Iron Works, Winston-Salem, N. C.
Savannah Iron & Metal Co., Savannah, Ga.
ELECTRIC FURNACE STEEL.
Henderson Iron Works, Shreveport, La.
Treadwell Engineering Co., Easton, Pa.
Warren Steel Casting Co., St. Louis, Mo.
GRAY IRON.
American-Blaquelee Mfg. Co., Birmingham, Ala.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
Cape Fear Machine Works, Wilmington, N. C.
Charlotte Pipe & Fdry. Co., Charlotte, N. C.
Chattanooga Rfg. & Fdry. Co., Chattanooga, Tenn.
Columbian Iron Works, Chattanooga, Tenn.
Durham Fdry. & Mch. Wks., Durham, N. C.
Georgia Car & Locomotive Co., Atlanta, Ga.
Glamorgan Pipe & Foundry Co., Atlanta, Ga.
Hammond-Byrd Iron Co., Birmingham, Ala.
Hardy-Tydes Mfg. Co., Birmingham, Ala.
Jenney & Co., Montgomery, Ala.
National Cast Iron Pipe Co., Birmingham, Ala.
Raleigh Iron Works Co., Raleigh, N. C.
Roanoke Iron & Bridge Wks., Inc., Roanoke, Va.
Savannah Iron & Metal Co., Savannah, Ga.
Southern Fdry. Co., Owensboro, Ky.
U. S. Cast Iron Pipe & Fdry. Co., Baltimore, Md.
Valik & Murdoch Co., Charleston, S. C.
Vogt Bros. Mfg. Co., Louisville, Ky.
Wilmington Iron Works, Inc., Wilmington, N. C.
MALLEABLE IRON AND STEEL.
Mal-Gra Casting Co., Cambridge City, Ind.
Missouri Malleable Iron Co., East St. Louis, Mo.
SEMI-STEEL.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
Jenney & Co., Montgomery, Ala.
Raleigh Iron Works Co., Raleigh, N. C.
Salem Fdry. & Mch. Wks., Salem, Va.
Vogt Bros. Mfg. Co., Louisville, Ky.
STEEL.
Bethlehem Steel Co., South Bethlehem, Pa.
Crucible Steel Castings Co., Lansdale, Pa.
Henderson Iron Works, Shreveport, La.
Hoffman & Co., Inc., R. C., Baltimore, Md.
Riverside Steel Casting Co., Newark, N. J.
Treadwell Engineering Co., Easton, Pa.
Warren Steel Casting Co., St. Louis, Mo.
CAUSTIC SODA APPARATUS.
Warner Chemical Co., New York, N. Y.
CEILING. (Metal.)
Berger Mfg. Co., Canton, Ohio.
Edwards Mfg. Co., Cincinnati, Ohio.
International Steel & Iron Co., Evansville, Ind.
Milwaukee Corrugating Co., Milwaukee, Wis.
CEMENT. (Portland.)
Cincinnati Portland Cem. Corp., Kingsport, Tenn.
Dixie Portland Cement Co., Chattanooga, Tenn.
Southern States Port. Cem. Co., Rockham, Va.
Standard Port. Cem. Co., Birmingham, Ala.
CEMENT GUN.
Cement Gun Co., Inc., Allentown, Pa.
CEMENT GUN WORK.
Cement Gun Co., Inc., Allentown, Pa.
CEMENT MACHINERY.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Bradley Pulverizer Co., Allentown, Pa.
Fuller-Leigh Co., Fullerton, Pa.
Traylor Eng. & Mfg. Co., Allentown, Pa.
CHAIN BLOCKS.
Ford Chain Block & Mfg. Co., Philadelphia, Pa.
Wright Mfg. Co., Lisbon, O.
CHAINS.
DREDGE, QUARRY, STEAM SHOT.
American Chain Co., Bridgeport, Conn.
Topping Bros., New York City, N. Y.
SPOCKEET.
Link-Belt Co., Philadelphia, Pa.
Webster Mfg. Co., Tiffin, Ohio.
CHANNELLERS.
Ingersoll-Rand Co., New York, N. Y.
CHAPLETS.
Fanner Mfg. Co., The, Cleveland, O.
CHEMISTS, CHEMICAL ENGINEERS.
ANALYTICAL.
Davis, Geo. C., Philadelphia, Pa.
Fort Worth Laboratories, Fort Worth, Tex.
Freehling & Robertson, Richmond, Va.
Hunt & Co., Robert W., Chicago, Ill.
Inst. of Industrial Research, Inc., Wash., D. C.
Little Co., Inc., Cambridge, Mass.
Meade & Co., Richmond, Va.
Mims, J. C., New Orleans, La.
Neelson, Jr., Wm. F., New Orleans, La.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.
Sadtler & Son, Samuel P., Philadelphia, Pa.
Wiley & Co., Baltimore, Md.
CEMENT. (Portland.)
Davis, Geo. C., Philadelphia, Pa.
Freehling & Robertson, Richmond, Va.
Hunt & Co., Robert W., Chicago, Ill.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.
COAL BY-PRODUCTS.
Inst. of Industrial Research, Washington, D. C.
Little Co., Inc., Arthur D., Cambridge, Mass.
Wiley & Co., Baltimore, Md.
COTTONSEED.
Fort Worth Laboratories, Ft. Worth, Tex.
Neelson, Jr., Wm. F., New Orleans, La.
Wiley & Co., Baltimore, Md.
FERTILIZERS.
Freehling & Robertson, Richmond, Va.
Wiley & Co., Baltimore, Md.
FUEL.
Davis, Geo. C., Philadelphia, Pa.
Fort Worth Laboratories, Ft. Worth, Tex.
Hunt & Co., Robert W., Chicago, Ill.
Inst. of Industrial Research, Inc., Wash., D. C.
Little, Inc., Arthur D., Cambridge, Mass.
Neelson, Jr., Wm. F., New Orleans, La.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.
Sadtler & Son, Samuel P., Philadelphia, Pa.
Wiley & Co., Baltimore, Md.

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CUTTER GRINDERS.
Vitrified Wheel Co., Westfield, Mass.

CUTTING MACHINES. (Metal.)
Racine Tool & Machine Co., Racine, Wis.

CUTS. (Half Tone, Line, etc.)
Alpha Photo Engraving Co., Baltimore, Md.

CYANIDE PLANT EQUIPMENT.
Pacific Sand & Pipe Co., San Francisco, Cal.

DERICKS AND DERICK FITTINGS.
Beckwith Machinery Co., Pittsburgh, Pa.
Byers Mach. Co., The, John F., Ravenna, Ohio.
Buffalo Hoist & Derrick Co., New York, N. Y.
Hayward Co., The, New York, N. Y.
Insley Manufacturing Co., Indianapolis, Ind.
Monaghan Machine Co., Chicago, Ill.

DESIGNERS AND ILLUSTRATORS. (Printed and Hand.)
Alpha Photo Engraving Co., Baltimore, Md.
DESKS. (Factory and Public Schools.)
American Seating Co., Chicago, Ill.

DIAMONDS. (For Mechanical Purposes.)
Desmond-Stephen Dresser Co., The, Urbana, O.

DITCHING MACHINERY.
Ball City Co. (Erie Steam Shovel Co.) Erie, Pa.
Bay City City Dredge Works, Bay City, Mich.
Buffery Traction Ditcher Co., Findlay, Ohio.
Fairbanks Steam Shovel Co., Marion, Ohio.
Hayward Co., The, New York, N. Y.
Monaghan Machine Co., Chicago, Ill.
Osgood Co., The, Marion, Ohio.
Sauerman Bros., Chicago, Ill.

DOORS AND SHUTTERS. (Steel Rolling.)
Detroit Steel Products Co., Detroit, Mich.

DOORS. (Steel Rolling, etc.)
Edwards Mfg. Co., Cincinnati, Ohio.
Kinneair Mfg. Co., Columbus, Ohio.
David Lupton & Sons Co., Philadelphia, Pa.

DOUBLE SEAMERS.
Ams Machine Co., Max, Bridgeport, Conn.

DRAFTSMEN'S SUPPLIES.
Weber & Co., P., Philadelphia, Pa.

DRAG SAWS. (Gasoline.)
Chickasaw Coopers Co., Memphis, Tenn.

DREDGING. (River, Harbor Improvement.)
Atlantic, Gulf & Pacific Co., New York, N. Y.

DRIERS.
Bartlett & Snow Co., The, C. O., Cleveland, Ohio.
Machinery Utilities Co., New York, N. Y.

DRILLING CONTRACTORS.
Pennsylvania Drilling Co., Pittsburgh, Pa.

DRILLS.
ELECTRIC.
Independent Pneumatic Tool Co., Chicago, Ill.
PNEUMATIC.
Independent Pneumatic Tool Co., Chicago, Ill.
PROSPECTING.
Ingersoll-Rand Co., New York, N. Y.
ROCK AND MINING.
Ingersoll-Rand Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, Ohio.
Sullivan Mchry. Co., Chicago, Ill.
TWIST.
McKenna Brass & Mfg. Co., Inc., Pittsburgh, Pa.

DROP FORGINGS.
American Spiral Pipe Works, Chicago, Ill.
Lakeside Forge Co., Erie, Pa.

DROP FORGING MACHINERY.
Bliss Co., E., Brooklyn, N. Y.

DRUMS. (Steel.)
Standard Tank Co., New York, N. Y.

DRY DOCKS. (Builders of.)
American Bridge Co., New York, N. Y.
Foundation Co., The, New York, N. Y.

DRYING APPARATUS.
Carrier Engineering Corp., New York, N. Y.

DRYING MACHINERY.
American Process Co., New York, N. Y.
Bailey-Lebby Co., The, Charleston, S. C.
Bartlett & Snow Co., The, C. O., Cleveland, Ohio.
Buffalo Forge Co., Buffalo, N. Y.
Christie Co., L. R., Pittsburgh, Pa.
Clarae Fan Co., Kalamazoo, Mich.
Coatesville Boiler Works, Coatesville, Pa.
Hersey Mfg. Co., South Boston, Mass.
Louisville Drying Mchry. Co., Louisville, Ky.
Ruggles Cos. Engr. Co., York, Pa.

DRY KILNS.
Buffalo Forge Co., Buffalo, N. Y.
Moore Dry Kiln Co., L., Jacksonville, Fla.

DRY KILN EQUIPMENT.
Moore Dry Kiln Co., L., Jacksonville, Fla.

DUMPEWALTERS. (Hand Power.)
McKenna Brass & Mfg. Co., Inc., Pittsburgh, Pa.
Speidel, J. G., Reading, Pa.

DUMP BOXES.
Everett Mfg. Co., Newark, N. J.

DUMP WAGONS.
Western Wheeled Scraper Co., Aurora, Ill.

DUST-COLLECTING SYSTEMS.
Buffalo Forge Co., Buffalo, N. Y.
Shreveport Blow Pipe & S. I. Works, Ltd., Shreveport, La.

DUSTPROOFING. (Concrete.)
Sonnetson Sons, Inc., New York, N. Y.

DYESTUFFS.
Wolf & Co., Jacques, Passaic, N. J.

DYNAMITE. (Industrial and Agricultural.)
Atlas Explosives Co., Inc., New York, N. Y.
Atlas Powder Co., Wilmington, Del.
Du Pont de Nemours & Co., E. I., Wilton, Del.

DYNAMOS AND MOTORS.
General Electric Co., Schenectady, N. Y.
Pan Electric Mfg. Co., St. Louis, Mo.
Wagner Elec. Mfg. Co., St. Louis, Mo.
West'house Elec. & Mfg. Co., E. Pittsburgh, Pa.
Western Electric Co., New York, N. Y.

EJECTORS. (Sewage.)
Lunkenheimer Co., The, Cincinnati, Ohio.

ELECTRIC FUSES. (Renewable and Non-Renewable.)
Economy Fuse & Mfg. Co., Chicago, Ill.

ELECTRIC LIGHTING FIXTURES.
Mitchell, Vance Co., Inc., New York, N. Y.

ELECTRIC MACHINERY. (Dynamos, Generators, Motors, etc.)
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Blount & Co., J. L., Birmingham, Ala.
Carroll Electric Co., Washington, D. C.
Doubleday-Hill Electric Co., Washington, D. C.
Elliott Electric Co., Cleveland, Ohio.
General Electric Co., Schenectady, N. Y.
Gregory Electric Co., Chicago, Ill.
Klein & Co., Nathan, New York, N. Y.
Lincoln Electric Co., Cleveland, Ohio.
Monarch Electric Motor Co., New York, N. Y.
O'Brien Machinery Co., Philadelphia, Pa.
Pan Electric Mfg. Co., St. Louis, Mo.
Piedmont Electric Co., Asheville, N. C.
Sachsenmaier & Co., Geo., Philadelphia, Pa.
Stewart, J. J. [Electric], New Orleans, La.
Wagner Elec. Mfg. Co., St. Louis, Mo.
Western Electric Co., New York, N. Y.
West'house Elec. & Mfg. Co., E. Pittsburgh, Pa.
Wilson Machinery Co., St. Louis, Mo.

ELECTRICAL CONTRACTORS' INSTRUMENTS AND SUPPLIES.
Booth Felt Co., Inc., Brooklyn, N. Y.
Carroll Electric Co., Washington, D. C.
Doubleday-Hill Electric Co., Washington, D. C.
General Electric Co., Schenectady, N. Y.
Piedmont Electric Co., Asheville, N. C.
Weston Electrical Instrument Co., Newark, N. J.

XUM

ELECTRICAL CONDUITS.

National Metal Molding Co., Pittsburgh, Pa.

ELECTRICAL MACHINERY REPAIRING.

(Motors, Generators, etc.)

Charlotte Elec. Repair Co., Charlotte, N. C.

ELECTRIC LIGHT PLANTS. (Portable.)

Edison Storage Battery Co., Orange, N. J.

Lucy Mfg. Co., New York, N. Y.

ELEVATORS.

AUTOMATIC.

Mathews Gravity Carrier Co., Ellwood City, Pa.

ELECTRIC.

American Elev. & Mch. Co., Inc., Louisville, Ky.

K. C. Elevator Mfg. Co., Kansas City, Mo.

Moffatt Mch. Mfg. Co., Charlotte, N. C.

Otis Elevator Co., New York, N. Y.

Spiegel, J. G., Reading, Pa.

Warsaw Elevator Co., Baltimore, Md.

HAND AND BELT POWER.

American Elev. & Mch. Co., Inc., Louisville, Ky.

K. C. Elevator Mfg. Co., Kansas City, Mo.

Moffatt Mch. Mfg. Co., Charlotte, N. C.

Otis Elevator Co., New York, N. Y.

Spiegel, J. G., Reading, Pa.

HYDRAULIC.

American Elev. & Mch. Co., Inc., Louisville, Ky.

K. C. Elevator Mfg. Co., Kansas City, Mo.

Moffatt Mch. Mfg. Co., Charlotte, N. C.

Otis Elevator Co., New York, N. Y.

Spiegel, J. G., Reading, Pa.

PORTABLE FOR WAREHOUSES, ETC.

Economy Engineering Co., Chicago, Ill.

STEAM HYDRAULIC.

Otis Elevator Co., New York, N. Y.

K. C. Elevator Mfg. Co., Kansas City, Mo.

Moffatt Mch. Mfg. Co., Charlotte, N. C.

Otis Elevator Co., New York, N. Y.

Spiegel, J. G., Reading, Pa.

ELEVATOR BUCKETS.

Alvey-Ferguson Co., Inc., Cincinnati, Ohio.

Caldwell & Son Co., H. W., Chicago, Ill.

Hendrick Mfg. Co., Carbonate, Pa.

Jeffrey Mfg. Co., Columbus, Ohio.

Link-Belt Co., Philadelphia, Pa.

ELEVATOR ENCLOSURES AND CABS.

Bolles Iron & Wire Works, J. E., Detroit, Mich.

Dexter Metal Mfg. Co., Camden, N. J.

Dow Wire & Iron Works, Inc., Louisville, Ky.

Dufur & Co., Baltimore, Md.

Dufur, Baggett & Co., Baltimore, Md.

Meyers Mfg. Co., Inc., Fred J., Hamilton, Ohio.

Otis Elevator Co., New York, N. Y.

EMERY WHEEL STANDS.

Webster & Lark Tool Co., The, Springfield, O.

ENAMELS.

Aron Co., Cleveland, Ohio.

ENGINEERS.

Morse, Stanley F., New Orleans, La.

APPRAISAL.

Allison, Walter A., Philadelphia, Pa.

American Appraisal Co., The, Milwaukee, Wis.

Black & Veatch, Kansas City, Mo.

Day & Zimmerman, Inc., Philadelphia, Pa.

Ford, Bacon & Davis, New York, N. Y.

Industrial Engineering Corp., Hazard, Ky.

Kinneer & Co., W. S., New York, N. Y.

Meade & Co., R. C., Baltimore, Md.

Weller, Francis R., Washington, D. C.

BLAST FURNACES.

Fuller Engineering Co., Allentown, Pa.

Guernsey & Co., John B., Roanoke, Va.

McKee & Co., Arthur G., Cleveland, Ohio.

Smythe Co., The S. R., Pittsburgh, Pa.

BRIDGES.

Concrete Steel Bridge Co., The, Clarkburg, W. Va.

Concrete Steel Engr. Co., New York, N. Y.

Foundation Co., The, New York, N. Y.

Freeland-Klyce Engr. Co., Nashville, Tenn.

Gardner & Howe, Memphis, Tenn.

Hendrick & Hedrick, Kansas City, Mo.

Kinneer & Co., W. S., New York, N. Y.

Luten, Daniel B., Indianapolis, Ind.

CEMENT MILLS.

Fuller Engineering Co., Allentown, Pa.

Meade & Co., R. C., Baltimore, Md.

CHEMICAL.

Birmingham Mach. & Fdry. Co., Birmingham, Ala.

Dow & Smith, New York, N. Y.

Foundation Co., The, New York, N. Y.

Gilbert, N. A., Ashland, Ala.

Inst. of Industrial Research, Inc., Wash., D. C.

Little, Inc., Arthur D., Cambridge, Mass.

Meade & Co., R. C., Baltimore, Md.

Nelson, Jr., Wm. P., New Orleans, La.

Pittsburgh Testing Laboratory, Pittsburgh, Pa.

CIVIL.

Arnold Co., The, Chicago, Ill.

Brackett, F. Ernest, Cumberland, Md.

Clark & Krebs, Charleston, W. Va.

Concrete Steel Engr. Co., New York, N. Y.

Foundation Co., The, New York, N. Y.

Gardner & Howe, Memphis, Tenn.

Hall & Sons, B. M., Atlanta, Ga.

Kinneer & Co., W. S., New York, N. Y.

Knowles, Morris, Pittsburgh, Pa.

Moore & Co., W. E., Pittsburgh, Pa.

Pride & Fairley, Blytheville, Ark.

White Companies, J. G., New York, N. Y.

DAMS.

Byllesby & Co., H. M., Chicago, Ill.

Cooper & Co., Hugh L., New York, N. Y.

Foundation Co., The, New York, N. Y.

Gardner & Howe, Memphis, Tenn.

Main, Chas., Boston, Mass.

Moore & Co., W. E., Pittsburgh, Pa.

Weller, Francis R., Washington, D. C.

White Companies, J. G., New York, N. Y.

DRAINAGE AND IRRIGATION.

Brett Eng. & Const. Co., Norfolk, Va.

Ford, Bacon & Davis, New York, N. Y.

Knowles, Morris, Blytheville, Ark.

Pride & Fairley, Blytheville, Ark.

Spray Engr. Co., Boston, Mass.

EFFICIENCY.

Inst. of Industrial Research, Inc., Wash., D. C.

Little, Inc., Arthur D., Cambridge, Mass.

Moore & Co., W. E., Pittsburgh, Pa.

Nelson, Jr., Wm. P., New Orleans, La.

ELECTRICAL.

Arnold Co., The, Chicago, Ill.

Cooper & Co., Hugh L., New York, N. Y.

Friend & Weber, New Orleans, La.

Industrial Engineering Corp., Hazard, Ky.

Lide, Martin J., Birmingham, Ala.

Meade & Co., R. C., Baltimore, Md.

Moore & Co., W. E., Pittsburgh, Pa.

Stone & Webster, Boston, Mass.

Weller, Francis R., Washington, D. C.

Westhouse Church Kerr & Co., New York, N. Y.

White Companies, J. G., New York, N. Y.

White, Gilbert C., Charlotte, N. C.

Wiley & Wilson, Lynchburg, Va.

GAS.

Allison, Walter A., Philadelphia, Pa.

Byllesby & Co., H. M., Chicago, Ill.

Ford, Bacon & Davis, New York, N. Y.

GEOLOGICAL.

Clark & Krebs, Charleston, W. Va.

Davis, Geo. C., Philadelphia, Pa.

Freeland-Klyce Engr. Co., Nashville, Tenn.

Institute of Indus. Resch., Inc., Wash., D. C.

Meade & Co., R. C., Baltimore, Md.

Mines Efficiency Co., Duluth, Minn.

HYDRO-ELECTRIC.

Byllesby & Co., H. M., Chicago, Ill.

Cooper & Co., Hugh L., New York, N. Y.

Foundation Co., The, New York, N. Y.

Kinneer & Co., W. S., New York, N. Y.

Knowles, Morris, Pittsburgh, Pa.

Main, Chas., Boston, Mass.

Moore & Co., W. E., Pittsburgh, Pa.

Seaford Engineering Co., Philadelphia, Pa.

Smythe Co., The, New York, N. Y.

Tucker & Laxton, Charlotte, N. C.

Weller, Francis R., Washington, D. C.

White Companies, J. G., New York, N. Y.

Wiley & Wilson, Lynchburg, Va.

INDUSTRIAL PLANT.

Austin Co., The, Cleveland, Ohio.

Brackett, F. Ernest, Cumberland, Md.

Brooks Eng. Co., C. L., Moultrie, Ga.

Concrete Steel Bridge Co., The, Clarkburg, W. Va.

Day & Zimmerman, Inc., Philadelphia, Pa.

Dixie Engineering & Insulating Co., Atlanta, Ga.

Foundation Co., The, New York, N. Y.

Friend & Weber, New Orleans, La.

Fuller Engineering Co., Allentown, Pa.

Gardner & Howe, Memphis, Tenn.

Institute of Indus. Resch., Inc., Wash., D. C.

International Conveyor Corp., The, Wash., D. C.

Kinneer & Co., W. S., New York, N. Y.

Little, Inc., Arthur D., Cambridge, Mass.

McKee & Co., Arthur G., Cleveland, Ohio.

McKinney Const. Co., John T., Lynchburg, Va.

Main, Chas., Boston, Mass.

Meade & Co., R. C., Baltimore, Md.

Moore & Co., W. E., Pittsburgh, Pa.

Nelson, Jr., Wm. P., New Orleans, La.

O'Brien, W. E., Memphis, Tenn.

Rust Engineering Co., The, Pittsburgh, Pa.

Seaford Engineering Co., Philadelphia, Pa.

Shneider, C. E., Memphis, Tenn.

Stone & Webster, Boston, Mass.

Westhouse Church Kerr & Co., New York, N. Y.

White Companies, J. G., New York, N. Y.

Wiley & Wilson, Lynchburg, Va.

Wortham, Edwin, Richmond, Va.

INSPECTIONS AND TESTS.

Dow & Smith, New York, N. Y.

Fort Worth Laboratories, Fort Worth, Tex.

Freeland-Klyce Engr. Co., Nashville, Tenn.

Hunt & Co., Robert W., Chicago, Ill.

Institute of Indus. Resch., Inc., Wash., D. C.

Kinneer & Co., W. S., New York, N. Y.

Pittsburgh Testing Laboratory, Pittsburgh, Pa.

Pride & Fairley, Blytheville, Ark.

LAND-SCAPE.

Burnap, Geo., Washington, D. C.

Hoffman, Leon, Atlanta, Ga.

LEVEES.

Brett Eng. & Contracting Co., Norfolk, Va.

Moore & Co., W. E., Pittsburgh, Pa.

Pride & Fairley, Blytheville, Ark.

LIGHTING.

Byllesby & Co., H. M., Chicago, Ill.

Ford, Bacon & Davis, New York, N. Y.

McCrory & Co., J. B., Atlanta, Ga.

Wiley & Wilson, Lynchburg, Va.

MECHANICAL.

Arnold Co., The, Chicago, Ill.

Dixie Engineering & Insulating Co., Atlanta, Ga.

Friend & Weber, New Orleans, La.

Fuller Engineering Co., Allentown, Pa.

Industrial Engineering Corp., Hazard, Ky.

Lide, Martin J., Birmingham, Ala.

Meade & Co., R. C., Baltimore, Md.

Moore & Co., W. E., Pittsburgh, Pa.

Tucker & Laxton, Charlotte, N. C.

Wiley & Wilson, Lynchburg, Va.

METALLURGICAL.

Guernsey & Co., John B., Roanoke, Va.

Meade & Co., R. C., Baltimore, Md.

Mines Efficiency Co., Duluth, Minn.

MINING.

Brackett, F. Ernest, Cumberland, Md.

Clark & Krebs, Charleston, W. Va.

Guernsey & Co., John B., Roanoke, Va.

Hall & Sons, B. M., Atlanta, Ga.

International Conveyor Corp., The, Wash., D. C.

Johnston, Jr., A., Lancaster, Pa.

McKinney Const. Co., John T., Lynchburg, Va.

Mines Efficiency Co., Duluth, Minn.

MUNICIPAL.

Clark & Krebs, Charleston, W. Va.

Dow & Smith, New York, N. Y.

Jennings-Lawrence Co., The, Columbus, Ohio.

Knowles, Morris, Pittsburgh, Pa.

McCrory & Co., J. B., Atlanta, Ga.

Moore & Co., W. E., Pittsburgh, Pa.

White, Gilbert C., Durham, N. C.

PACKING-HOUSE.

Brooks Engineering Co., C. L., Moultrie, Ga.

Dixie Engineering & Insulating Co., Atlanta, Ga.

PAVING AND ROADS.

Frett Eng. & Contracting Co., Norfolk, Va.

Dow & Smith, New York, N. Y.

Freeland-Klyce Engr. Co., Nashville, Tenn.

Institute of Indus. Resch., Inc., Wash., D. C.

Jennings-Lawrence Co., The, Columbus, Ohio.

McKinney Const. Co., John T., Lynchburg, Va.

Pride & Fairley, Blytheville, Ark.

White, Gilbert C., Durham, N. C.

PUBLIC SERVICE PROPERTIES.

Byllesby & Co., H. M., Chicago, Ill.

Cooper & Co., Hugh L., New York, N. Y.

Day & Zimmerman, Inc., Philadelphia, Pa.

Ford, Bacon & Davis, New York, N. Y.

Kinneer & Co., W. S., New York, N. Y.

Seaford Engineering Co., Philadelphia, Pa.

Stone & Webster, Boston, Mass.

Weller, Francis R., Washington, D. C.

Westhouse Church Kerr & Co., New York, N. Y.

White Companies, J. G., New York, N. Y.

Wiley & Wilson, Lynchburg, Va.

RAILROAD.

Brackett, F. Ernest, Cumberland, Ohio.

Clark & Krebs, Charleston, W. Va.

Hunt & Co., Robert W., Chicago, Ill.

International Conveyor Corp., The, Wash., D. C.

Kinneer & Co., W. S., New York, N. Y.

McKinney Const. Co., John T., Lynchburg, Va.

Meade & Co., R. C., Baltimore, Md.

Rust Engineering Co., The, Pittsburgh, Pa.

Savannah Engr. & Const. Co., Savannah, Ga.

Tucker & Laxton, Charlotte, N. C.

White Companies, J. G., New York, N. Y.

Wortham, Edwin, Richmond, Va.

REFRIGERATING.

Brooks Engineering Co., C. L., Moultrie, Ga.

Dixie Engineering & Insulating Co., Atlanta, Ga.

REINFORCED CONCRETE.

(Bridges, Buildings, etc.)

Concrete Steel Engr. Co., New York, N. Y.

Concrete Steel Bridge Co., The, Clarkburg, W. Va.

Foundation Co., The, New York, N. Y.

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Payne, N. B., New York, N. Y.
 Peerless Iron Pipe Etc., Inc., New York, N. Y.
 Penn Supply & Equipment Co., Philadelphia, Pa.
 Pfannmuller Engineering Co., Chicago, Ill.
 Phoenix Co., Inc., New York, N. Y.
 Pittsburg Contractors' Supply Co., New York, N. Y.
 Pittsburgh Machinery & Equip. Co., Pittsburgh, Pa.
 Potts & Co., Henry, Philadelphia, Pa.
 Power Equipment Co., Philadelphia, Pa.
 Power Machinery Exchange, Jersey City, N. J.
 Proutis & Co., Inc., New York, N. Y.
 Rand, L. Machinery Co., Cincinnati, Ohio.
 Richmond Mill Supply Co., Richmond, Va.
 Ross Power Equipment Co., Indianapolis, Ind.
 Sachsenmaier & Co., Geo., Philadelphia, Pa.
 Salberg & Co., Harry E., New York, N. Y.
 Samler & Co., Inc., New York, N. Y.
 Seely-Jones & Co., Chicago, Ill.
 Seeger-Walraven Co., Atlanta, Ga.
 Service Equipment Co., Philadelphia, Pa.
 Seyfert's Sons, Inc., L. E., Philadelphia, Pa.
 Shaw, Willis, Chicago, Ill.
 Shank-Galante Iron & Metal Co., Kan. City, Mo.
 South Side Fdry. & Mch. Wks., Charleston, W. Va.
 Southern Iron & Metal Co., Jacksonville, Fla.
 Southern Machinery Co., Knoxville, Tenn.
 Southern States Equip. Co., New Orleans, La.
 Sterling Iron & Steel Co., Philadelphia, Pa.
 Stewart, S. J. (Electric), New Orleans, La.
 Stewart, Paul, Cincinnati, Ohio.
 Straley, Dan'l B., Crown Point, Ind.
 Sular, Bert L., Chattanooga, Tenn.
 Tampa Machinery Exchange, Tampa, Fla.
 Terrell Engineering Co., Philadelphia, Pa.
 Tiller Co., J. G., Bristol, Va.
 Toomey, Frank, Inc., Philadelphia, Pa.
 Torbert, A. C., Chicago, Ill.
 Wayne Supply Co., Roy C., Louisville, Ky.
 Wilson Machinery Co., St. Louis, Mo.
 Wood & Co., Inc., Philadelphia, Pa.
 Zehner Supply Co., Walter A., St. Louis, Mo.

MACHINE TOOLS.
 Houston, Stancord-Pond Gamble Co., The, Chan., O.
 Niles-Bement-Pond Co., New York, N. Y.

MAGNETIC SEPARATORS.
 Buchanan Co., Inc., C. G., New York, N. Y.

MAIL CHUTES.
 Cutler Mail Chute Co., Rochester, N. Y.

MANGANESE.
 Southern Minerals Corp., Boston, Mass.

MANTELS. (Period Designs in Composition.)
 Mitchell, Vance Co., Inc., New York, N. Y.

MECHANICAL DRAFT.
 Buffalo Forge Co., Buffalo, N. Y.
 Clargage Fan Co., Kalamazoo, Mich.

METALINE.
 Metaline Co., Long Island City, N. Y.

METAL CORNER BEAD.
 Penn Metal Co., New York, N. Y.

METAL CUTTING MACHINES.
 Atkins & Co., Inc., E. C., Indianapolis, Ind.
 Racine Tool & Machine Co., Racine, Wis.

METAL. (For Tanks, Culverts, Roofing, etc.)
 Trumbull Steel Co., Warren, Ohio.
 Whitaker-Glessner Co., Wheeling, W. Va.

METAL-WORKING MACHINERY.
 Bliss Co., E. W., Brooklyn, N. Y.
 Niles-Bement-Pond Co., New York, N. Y.

MICROMETERS, CALIPERS, ETC.
 Starrett Co., L. S., Athol, Mass.

MILK FILTERS. (Liquor, Milk, etc.)
 International Filter Co., Chicago, Ill.

MILL MACHINERY AND SUPPLIES.
 Balfet-Leiby Co., Inc., Charleston, S. C.
 Booth Felt Co., Brooklyn, N. Y.
 Empire Mch. & Supply Corp., Norfolk, Va.
 Folz Mfg. & Supply Co., Hagerstown, Md.
 Lombard Iron Works, Augusta, Ga.
 Neckenburg Iron Works, Charlotte, N. C.
 New York Iron Works & Steel Co., Inc., New York, N. Y.
 Starr Co., B. F., Baltimore, Md.
 Stratton & Bragg Co., Petersburg, Va.
 Wolf Co., Chambersburg, Pa.

MILL SUPPLIES.
 Kries & Sons Co., Henry A., Baltimore, Md.

MILL TIMBER.
 Great Southern Lumber Co., Bogalusa, La.
 Moss-Dunn Lumber Co., Valdosta, Ga.

MILL WORK. (Lumber, All Kinds.)
 Bacon & Sons, A. B., Savannah, Ga.

MINE LAMPS. (Electric.)
 Edison Storage Battery Co., Orange, N. J.

MINING MACHINERY.
 Jeffrey Mfg. Co., Columbia, Ohio.
 McLannahan-Stone Mch. Co., Holidaysburg, Pa.
 Mecklenburg Iron Works, Charlotte, N. C.
 Thew Automatic Shovel Co., Lorain, Ohio.

MIXERS. (Concrete.)
 American Cement Mch. Co., Inc., Keokuk, Iowa.
 American Concrete Machinery Co., Inc., Chicago, Ill.
 Insley Manufacturing Co., Indianapolis, Ind.
 Jaeger Machine Co., Columbus, Ohio.
 Koehring Machine Co., Milwaukee, Wis.
 Northwestern Steel & Iron Wks., Eau Claire, Wis.
 Ramscom-Leach Co., Dummelen, N. J.
 Standard Scale & Supply Co., Pittsburgh, Pa.

MOTOR.
 Koehring Machine Co., Milwaukee, Wis.

MOTOR COLORS.
 Chattanooga Paint Co., Chattanooga, Tenn.

MOTOR TRUCKS. (Gasoline.)
 Garford Motor Truck Co., Lima, Ohio.
 General Motors Truck Co., Pontiac, Mich.
 International Motor Co., New York, N. Y.
 Republic Motor Truck Co., Inc., Alma, Mich.
 Sterling Motor Truck Co., Milwaukee, Wis.
 U. S. Motor Truck Co., The, Cincinnati, Ohio.

MUSIC WIRE.
 Abner Steel Co., New York, N. Y.
 American Steel & Wire Co., Chicago, Ill.
 Waterbury Co., The, New York, N. Y.

NAIL MACHINERY. (Wire.)
 Sleeper & Hartley, Inc., Worcester, Mass.

NAILS.
 Crr.
 La Belle Iron Works, Steubenville, Ohio.

WIRE, ALL KINDS.
 Atlantic Steel Co., Atlanta, Ga.
 Gulf States Steel Co., Birmingham, Ala.

NAILS AND SPIKES.
 Bethlehem Steel Co., South Bethlehem, Pa.
 La Belle Iron Works, Steubenville, Ohio.
 Republic Iron & Steel Co., Youngstown, Ohio.
 Simpson Steel Co., Edinboro, N. Y.
 Youngstown Sheet & Tube Co., Youngstown, O.

NAME PLATES. (For Highways.)
 Union Iron Products Co., East Chicago, Ind.

NICKEL. (Boron-Alloying.) [Shot.]
 American Boron Products Co., Reading, Pa.

NOZZLES. (Aerating Sprinkler, etc.)
 Spray Engineering Co., Boston, Mass.

NUITS.
 HOT PRESSED.
 St. Louis Screw Co., St. Louis, Mo.

SEMI-FINISHED.
 St. Louis Screw Co., St. Louis, Mo.

OIL-BURNING EQUIPMENT.
 Lockett & Co., Ltd., A. M., New Orleans, La.

OIL CANS.
 Wall Mfg. Supply Co., P., Allegheny, Pa.

OIL MILL MACHINERY.
 Burruss Engineering Co., Atlanta, Ga.

XUM

- OILS.** (Lubricating, etc.)
 Albany Lubricating Co., New York, N. Y.
 Borne, Scrymgeour & Co., New York, N. Y.
 Cusden Co., Tulsa, Okla.
 Gulf Refining Co., Pittsburgh, Pa.
 Robinson & Son Co., Wm. C., Baltimore, Md.
 Standard Oil Co. of Louisiana, Baton Rouge, La.
 Swain & Finch Co., New York, N. Y.
 Texas Co., The, New York, N. Y.
- OIL WELL MACHINERY.**
 Cook, A. P., Lawrenceburg, Ind.
 Keystone Pipe & Supply Co., Butler, Pa.
 Lucey Mfg. Co., New York, N. Y.
 Williams Bros., Ithaca, N. Y.
- ORE BUYERS.** (Copper, Lead, Gold, etc.)
 Minerals Separation & Refining Co., Chicago, Ill.
- ORE WASHING MACHINERY.**
 Davis Foundry & Machine Works, Rome, Ga.
 McLanahan Stone Mach. Co., Hollidaysburg, Pa.
- ORNAMENTAL IRON WORKS.**
 Holmes Iron & Wire Wks., J. E., Detroit, Mich.
 Chattanooga Hfg. & Fdy. Co., Chattanooga, Tenn.
 Dexter Metal Mfg. Co., Camden, N. J.
 Dow Wire & Iron Works, Inc., Louisville, Ky.
 Newman Mfg. Co., The, Cincinnati, Ohio.
 Page Steel & Wire Co., Adrian, Mich.
 Roanoke Iron & Bridge Wks., Inc., Roanoke, Va.
 Sward Architectural Iron Wks., Louisville, Ky.
- OXYGEN.**
 Linde Air Products Co., The, New York, N. Y.
- OXY-ACETYLENE WELDING AND CUTTING
 OUTFIT AND SUPPLIES.**
 Imperial Brass Mfg. Co., Chicago, Ill.
- PACKING HOUSE APPARATUS.**
 Dayton, Beater & Hoist Co., Dayton, Ohio.
 Ottelheimer Bros., Baltimore, Md.
- PACKING.** (Asbestos, Metallic, Rubber,
 Leather, etc.)
 Booth Felt Co., Inc., Brooklyn, N. Y.
 Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.
 Dominion Asbestos & Rub. Corp., New York, N. Y.
 Goodrich Co., B. F., Akron, Ohio.
 Goodyear Tire & Rubber Co., Akron, Ohio.
 Graton & Knight Mfg. Co., Worcester, Mass.
 Johns-Manville Co., H. W., New York, N. Y.
 Power Specialty Co., New York, N. Y.
- PAINT.**
METAL SURFACES.
 Dixon Crucible Co., Joseph, Jersey City, N. J.
 Du Pont de Nemours & Co., E. I., Wilm'ton, Del.
 Longman & Martinez, New York, N. Y.
 Toth Bros., New York, N. Y.
- PRESERVATIVE.**
 Arco Co., Cleveland, Ohio.
 Du Pont de Nemours & Co., E. I., Wilm'ton, Del.
 Longman & Martinez, New York, N. Y.
 Toth Bros., New York, N. Y.
- ROOFING, BUILDING, ETC.**
 Chattanooga Paint Co., Chattanooga, Tenn.
 Longman & Martinez, New York, N. Y.
- WATER.** (For Interiors.)
 Arco Co., Cleveland, Ohio.
 Longman & Martinez, New York, N. Y.
- PARTITIONS.** (Metal, Wooden, Rolling.)
 David Lupton's Sons Co., Philadelphia, Pa.
 Detroit Steel Products Co., Detroit, Mich.
- PATENT ATTORNEYS.**
 Boyden, J. Hanson, Washington, D. C.
 Brown, Eugene O., Washington, D. C.
 Chandie & Chandie, Washington, D. C.
 Evans & Co., Victor J., Washington, D. C.
 Shepherd & Campbell, Washington, D. C.
 Whitaker, Norman T., Washington, D. C.
- PAVING BLOCK.** (Granite.)
 Granite Paving Block Mfrs. Assn., Boston, Mass.
- PAVING BLOCKS.** (Wood.)
 Cresson Materials Co., Inc., New Orleans, La.
 Republic Cresson Co., Indianapolis, Ind.
 Southern Cresson Co., Ltd., Slidell, La.
 Southern Paving Const. Co., Chattanooga, Tenn.
 Southern Wood Preserving Co., Atlanta, Ga.
- PAVING BRICK.**
 Standard Brick Co., Macon, Ga.
- PAVING GUARDS.** (Steel.)
 International Steel Co., The, Cleveland, Ohio.
- PAVING MIXERS.** (Concrete.)
 American Cement Mfg. Co., Inc., Keokuk, Iowa.
 Jaeger Machine Co., The, Columbus, Ohio.
 Ranome-Leach Co., Dunellen, N. J.
 Standard Scale & Supply Co., Pittsburgh, Pa.
- PAVING PLANTS.** (Asphalt.)
 Cummer & Son Co., F. D., Cleveland, Ohio.
 Warren Bros. Co., Boston, Mass.
- PERFORATED METAL.**
 Caldwell & Son Co., H. W., Chicago, Ill.
 Erdle Perforating Co., Rochester, N. Y.
 Harrington & King Perforating Co., Chicago, Ill.
 Hendricks Mfg. Co., The, Carbondale, Pa.
 Manhattan Perforated Metal Co., New York, N. Y.
 Mundt & Sons, Charles, Jersey City, N. J.
- PETROLEUM REFINERS.**
 Cusden & Co., Tulsa, Okla.
 Gulf Refining Co., Pittsburgh, Pa.
 Standard Oil Co. of Louisiana, Baton Rouge, La.
 Texas Co., The, New York, N. Y.
- PHOSPHATE MACHINERY.**
 American Process Co., New York, N. Y.
 Bailey-Libby Co., The, Charleston, S. C.
 K-B Pulverizer Co., New York, N. Y.
 McLanahan Stone Mach. Co., Hollidaysburg, Pa.
 Vank & Murdoch Co., Charleston, S. C.
- PIG IRON.**
 Alabama Co., The, Birmingham, Ala.
 Bethlehem Steel Co., South Bethlehem, Pa.
 Bourne-Fuller Co., The, Cleveland, Ohio.
 Brier Hill Steel Co., Youngstown, Ohio.
 Hammond-Byrd Co., The, Birmingham, Ala.
 La Belle Iron Works, Steubenville, Ohio.
 Republic Iron & Steel Co., Youngstown, Ohio.
 Tennessee Coal, Iron & R. R. Co., Birm'ham, Ala.
- PILING.** (Crescoted.)
 American Crescote Works, New Orleans, La.
 Crescote Material Co., Inc., New Orleans, La.
 Southern Crescote Co., Ltd., Slidell, La.
 Southern Paving Const. Co., Chattanooga, Tenn.
- PILLION BLOCKS.**
 Caldwell Co., W. E., Louisville, Ky.
 Golden's Foundry & Machine Co., Columbus, Ga.
 Medart Patent Pulley Co., St. Louis, Mo.
- SHAFT.**
 Bond Fdy. & Mach. Co., Mannheim, Pa.
- PINE.** (Southern Long Leaf.)
 Great Southern Lumber Co., Bogalusa, La.
- PIPE.**
 La Belle Iron Works, Steubenville, Ohio.
 National Tube Co., Pittsburgh, Pa.
 Youngstown Sheet & Tube Co., Youngstown, Ohio.
- CAST IRON.**
 American Cast Iron Pipe Co., Birmingham, Ala.
 Cast Iron Pipe & Publicity Bureau, New York, N. Y.
 Central Foundry Co., New York, N. Y.
 Charlotte Pipe & Fdy. Co., Charlotte, N. C.
 Glamorgan Pipe & Foundry Co., Lynchburg, Va.
 National Cast Iron Pipe Co., Birmingham, Ala.
 U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.
 Wood & Co., B. D., Philadelphia, Pa.
- COIL.**
 Frick Co., Waynesboro, Pa.
- RIVETED.**
 Abendroth & Root Mfg. Co., Newburgh, N. Y.
 New Bern I. Wks. & S. Co., Inc., New Bern, N. C.
- SECOND HAND.**
 Caneel & Co., B. Chattanooga, Tenn.
 Griffith, James, Philadelphia, Pa.
 Keystone Pipe & Supply Co., Butler, Pa.
- Marine Metal & Supply Co., New York, N. Y.**
 Ohio Pipe Co., Findlay, Ohio.
 Peerless Iron Pipe Etc., Inc., New York, N. Y.
 Pipe & Contractors' Supply Co., New York, N. Y.
- SPIRAL RIVETED.**
 Abendroth & Root Mfg. Co., Newburgh, N. Y.
 American Spiral Pipe Works, Chicago, Ill.
- SPIRAL STEEL.**
 Stadard Spiral Pipe Works, Chicago, Ill.
- STEEL.**
 National Tube Co., Pittsburgh, Pa.
 La Belle Iron Works, Steubenville, Ohio.
 Republic Iron & Steel Co., Youngstown, Ohio.
 Youngstown Sheet & Tube Co., Youngstown, Ohio.
- WOOD.**
 Michigan Pipe Co., Bay City, Mich.
 Pacific Tank & Pipe Co., San Francisco, Cal.
 Rich Will Co., The, Cleveland, Ohio.
 Standard Wood Pipe Co., Williamsport, Pa.
 Wyckoff & Son Co., A., Elmira, N. Y.
- WROUGHT IRON.**
 Youngstown Sheet & Tube Co., Youngstown, Ohio
- PIPES & FITTINGS.** (Acid Proof.)
 Duriron Casting Co., Dayton, Ohio.
- PIPE BENDERS.**
 American Pipe Bending Mch. Co., Boston, Mass.
- PIPE COVERINGS.**
 Magnesia Association of America, Phila., Pa.
- PIPE FITTINGS.**
 American Cast Iron Pipe Co., Birmingham, Ala.
 Crane Co., Chicago, Ill.
 Griffith, James F., Philadelphia, Pa.
 Kries & Sons Co., Henry A., Baltimore, Md.
 Lunsheimer Co., The, Cincinnati, Ohio.
 National Cast Iron Pipe Co., Birmingham, Ala.
- PIPE UNIONS AND JOINTS.**
 Dart Mfg. Co., E. M., Providence, R. I.
- PISTON RINGS.** (Compressors, Engines, etc.)
 The Everlight Piston Ring Co., St. Louis, Mo.
- PITCH.**
 Barrett Co., New York, N. Y.
- PLATES.**
STEEL.
 Allegheny Steel Co., Pittsburgh, Pa.
 Cincinnati Iron & Steel Co., Cincinnati, Ohio.
 Midvale Steel & Ordnance Co., Philadelphia, Pa.
 Wood Iron & Steel Co., Alb., Philadelphia, Pa.
- POLES.** (Chestnut, Electric Light, Telephone.)
 Davidson & McBrady, Nashville, Tenn.
- POLES.** (Crescoted.)
 American Crescote Works, New Orleans, La.
 Crescote Material Co., Inc., New Orleans, La.
 Southern Crescote Co., Ltd., Slidell, La.
 Southern Exchange Co., New York, N. Y.
 Southern Pav. Const. Co., Chattanooga, Tenn.
 Southern Wood Preserving Co., Atlanta, Ga.
- POLISHING MACHINERY.** (Wheels, Blocks.)
 Vitried Wheel Co., Westfield, Mass.
- POSTS.** (Cast Iron.) (Railway and Highway.)
 U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.
- POST CAPS.**
 Van Dorn Iron Works Co., The, Cleveland, Ohio.
- POWER TRANSMISSION MACHINERY.**
 Alvey-Ferguson Co., Inc., Cincinnati, Ohio.
 Bailey-Libby Co., Charleston, S. C.
 Bond Fdy. & Mach. Co., Mannheim, Pa.
 Caldwell & Son Co., H. W., Chicago, Ill.
 Caldwell Co., W. E., Louisville, Ky.
 Conway & Co., Cincinnati, Ohio.
 Cresson-Morris Co., Philadelphia, Pa.
 Dodge Sales & Engr. Co., Mishawaka, Ind.
 Golden's Foundry & Machine Co., Columbus, Ga.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jones & Laughlin Steel Co., Pittsburgh, Pa.
 Link-Belt Co., Philadelphia, Pa.
 Medart Patent Pulley Co., St. Louis, Mo.
 Morse Chain Co., Ithaca, N. Y.
 Schofield Iron Works, Macon, Ga.
 Smith-Couthern Co., Richmond, Va.
 Standard Pressed Steel Co., Philadelphia, Pa.
 The American Pulley Co., Philadelphia, Pa.
 Wolf Co., The, Chambersburg, Pa.
 Wood's Sons, T. B., Chambersburg, Pa.
- PRESERVATIVE.** (Canvas.)
 Robeson Preservo Products Co., Port Huron, Mich.
- PRESSES.**
**BALING, COTTONSEED OIL, ETC., HYDRAULIC
 AND POWER.**
 Anderson Co., The, V. D., Cleveland, Ohio.
 Bauer Bros. Co., The, Springfield, Ohio.
 Dunning & Boschert Press Co., Inc., Syracuse, N. Y.
 Gardell Machine Co., Richmond, Va.
 Continental Gin Co., Birmingham, Ala.
 French Oil Mill Mchry. Co., The, Piqua, Ohio.
 Murray Co., The, Atlanta, Ga.
 Ripley Foundry & Machine Co., Ripley, Ohio.
 Saco-Lowell Shops, Boston, Mass.
- METAL STAMPING.**
 Stimpson Co., Edwin B., Brooklyn, N. Y.
- STAMPING.**
 Ams Machine Co., Max, Bridgeport, Conn.
 Bliss Co., E. W., Brooklyn, N. Y.
- PRINTERS.** (Book, Catalog, Job, etc.)
 Robert & Son, Birmingham, Ala.
 Fleet-McClintock Co., Baltimore, Md.
- PRISON WORK.**
 Van Dorn Iron Works, The, Cleveland, Ohio.
- PULLEYS.**
FRUITION CLUTCH.
 Caldwell & Son Co., H. W., Chicago, Ill.
 Caldwell & Son Co., H. W., Louisville, Ky.
 Cresson-Morris Co., Philadelphia, Pa.
 Dodge Sales & Engr. Co., Mishawaka, Ind.
 Medart Patent Pulley Co., St. Louis, Mo.
 Wood's Sons Co., T. B., Chambersburg, Pa.
- STEEL RIM.**
 Medart Patent Pulley Co., St. Louis, Mo.
 The American Pulley Co., Philadelphia, Pa.
- WOOD SPLIT.**
 Caldwell & Son Co., H. W., Chicago, Ill.
 Medart Patent Pulley Co., St. Louis, Mo.
- PULLEYS, SHAFING AND HANGERS.**
 Bond Fdy. & Mach. Co., Mannheim, Pa.
 Caldwell & Son Co., H. W., Chicago, Ill.
 Conway & Co., Cincinnati, Ohio.
 Cresson-Morris Co., Philadelphia, Pa.
 Dodge Sales & Engr. Co., Mishawaka, Ind.
 Golden's Foundry & Machine Co., Columbus, Ga.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Jones & Laughlin Steel Co., Pittsburgh, Pa.
 Medart Patent Pulley Co., St. Louis, Mo.
 Standard Pressed Steel Co., Philadelphia, Pa.
 The American Pulley Co., Philadelphia, Pa.
 Wood's Sons Co., T. B., Chambersburg, Pa.
- PULVERIZERS.**
 American Pulverizer Co., St. Louis, Mo.
 Austin Mfg. Co., Chicago, Ill.
 Excelsior Tool & Mach. Co., East St. Louis, Mo.
 Frier-Luhig Co., Fullerton, Pa.
 Gruendler Pat. Crusher & Pulv. Co., St. Louis, Mo.
 Jeffrey Mfg. Co., Columbus, Ohio.
 K-B Pulverizer Co., Inc., New York, N. Y.
 McLanahan Stone Mach. Co., Hollidaysburg, Pa.
 Raymond Bros. Impact Pulv. Co., Chicago, Ill.
 Traylor Engineering & Mfg. Co., Allentown, Pa.
 Western Wheeled Scraper Co., Aurora, Ill.
 Williams Pat. Crusher & Pulv. Co., Chicago, Ill.
- PUMPING MACHINERY.**
 Cameron Steam Pump Wks., A.S., New York, N. Y.
 Cook, A. D., Lawrenceburg, Ind.
 Dayton-Dick Co., Quincy, Ill.
 Dean Bros. Steam Pump Wks., Indianapolis, Ind.
 Emerson Pump & Valve Co., Alexandria, Va.
- Goulds Mfg. Co., Seneca Falls, N. Y.**
 Lea-Courtney Co., Newark, N. J.
 Lucey Mfg. Co., New York, N. Y.
 Moffatt Machy. Mfg. Co., Charlotte, N. C.
 Morris Machine Works, Baldwinville, N. Y.
 Mutual Foundry & Machine Co., Atlanta, Ga.
 Myers & Bro., F. E., Ashland, Ohio.
 National Transit Pump & Mch. Co., Oil City, Pa.
 Reilly Mfg. Co., J. J., Louisville, Ky.
 Vogt Bros. Mfg. Co., Louisville, Ky.
 Wood & Co., R. D., Philadelphia, Pa.
 Worthington Pump & Mch. Corp., New York, N. Y.
- PUMPS.**
ACID PROOF.
 Duriron Casting Co., Dayton, Ohio.
- AIR LIFT.**
 Ingersoll-Rand Co., New York, N. Y.
 Sullivan Mchry. Co., Chicago, Ill.
- ASPHALT AND ROAD OIL.**
 Kinney Mfg. Co., Boston, Mass.
- BOILER FEED.**
 Allis-Chalmers Mfg. Co., Milwaukee, Wis.
 Cameron Steam Pump Wks., A.S., New York, N. Y.
 Dayton-Dick Co., Quincy, Ill.
 Dean Bros. Steam Pump Wks., Indianapolis, Ind.
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Lucey Mfg. Co., New York, N. Y.
 Moffatt Machy. Mfg. Co., Charlotte, N. C.
 Murray Iron Works Co., Burlington, Iowa.
 Myers & Bro., F. E., Ashland, Ohio.
 Reilly Mfg. Co., J. J., Louisville, Ky.
 Vogt Bros. Mfg. Co., Louisville, Ky.
 Worthington Pump & Mch. Corp., New York, N. Y.
- CENTRIFUGAL.**
 Allis-Chalmers Mfg. Co., Milwaukee, Wis.
 Buffalo Steam Pump Co., Buffalo, N. Y.
 Cameron Steam Pump Wks., A.S., New York, N. Y.
 Dayton-Dick Co., Quincy, Ill.
 Erie Pump & Engine Co., Medina, N. Y.
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Lea-Courtney Co., Newark, N. J.
 Lucey Mfg. Co., New York, N. Y.
 Morris Machine Works, Baldwinville, N. Y.
 Mutual Foundry & Machine Co., Atlanta, Ga.
 Novo Engine Co., Lansing, Mich.
 Wood & Co., R. D., Philadelphia, Pa.
 Worthington Pump & Mch. Corp., New York, N. Y.
- DEEP WELL.**
 Cameron Steam Pump Wks., A.S., New York, N. Y.
 Cook, A. D., Lawrenceburg, Ind.
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Hurt-Denison Mfg. Co., Kansas City, Mo.
 Layne & Bowler Co., Memphis, Tenn.
 Novo Engine Co., Lansing, Mich.
- DIAPHRAGM.**
 Novo Engine Co., Lansing, Mich.
- DREDGING.**
 Buffalo Steam Pump Works, Buffalo, N. Y.
 Erie Pump & Engine Co., Medina, N. Y.
 Morris Machine Works, Baldwinville, N. Y.
 Mutual Foundry & Machine Co., Atlanta, Ga.
 Wood & Co., R. D., Philadelphia, Pa.
 Worthington Pump & Mch. Corp., New York, N. Y.
- FUEL-OIL.**
 Lockett & Co., Ltd., A. M., New Orleans, La.
- HYDRAULIC.**
 Dunning & Boschert Press Co., Inc., Syracuse, N. Y.
 Buffalo Steam Pump Co., Buffalo, N. Y.
 Cameron Steam Pump Wks., A.S., New York, N. Y.
 Caldwell Machine Co., Richmond, Va.
 Dean Bros. Steam Pump Wks., Indianapolis, Ind.
 French Oil Mill Machinery Co., The, Piqua, Ohio.
 Worthington Pump & Mch. Corp., New York, N. Y.
- OIL.**
 Lockett & Co., Ltd., A. M., New Orleans, La.
- POWER.**
 Worthington Pump & Mch. Corp., New York, N. Y.
- STEAM.**
 Buffalo Steam Pump Co., Buffalo, N. Y.
 Cameron Steam Pump Wks., A.S., New York, N. Y.
 Cook, A. D., Lawrenceburg, Ind.
 Dean Bros. Steam Pump Wks., Indianapolis, Ind.
 Emerson Pump & Valve Co., Alexandria, Va.
 Lucey Mfg. Co., New York, N. Y.
 Murray Iron Works Co., Burlington, Iowa.
 National Transit Pump & Mch. Co., Oil City, Pa.
 Reilly Mfg. Co., J. J., Louisville, Ky.
 Vogt Bros. Mfg. Co., Louisville, Ky.
 Worthington Pump & Mch. Corp., New York, N. Y.
- TRIPLEX POWER.**
 Novo Engine Co., Lansing, Mich.
- VACUUM.**
 Allis-Chalmers Mfg. Co., Milwaukee, Wis.
 Cameron Steam Pump Wks., A.S., New York, N. Y.
 Georgia & Florida Ry. Co., Savannah, Ga.
 Nagle Corlies Engine Works, Erie, Pa.
 Worthington Pump & Mch. Corp., New York, N. Y.
- WATER WORKS.**
 Dayton-Dick Co., Quincy, Ill.
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Hurt-Denison Mfg. Co., Kansas City, Mo.
 Worthington Pump & Mch. Corp., New York, N. Y.
- PUMP LEATHERS.**
 Graton & Knight Mfg. Co., Worcester, Mass.
- PUNCHING AND SHEARING MACHINERY.**
 Bliss Co., E. W., Brooklyn, N. Y.
- RAILINGS.** (Iron Pipe.)
 Pipe Railing Const. Co., Long Island City, N. Y.
- RAILROADS.** (Offering Industrial, Agricultural
 and Commercial Opportunities.)
 Carolina, Clinch, & O. R. R., Johnson City, Tenn.
 Central of Georgia Railway, Savannah, Ga.
 Georgia & Florida Ry. Co., Savannah, Ga.
 Model Land Company of the Flagler System,
 St. Augustine, Fla.
 Winston-Salem Southbound Railway Co., Win-
 ston-Salem, N. C.
- RAILROAD EQUIPMENT AND SUPPLIES.**
 (New and Second-hand.)
 American Frog & Switch Co., Hamilton, Ohio.
 American Metallic Packing Co., Lexington, Ky.
 American Rwy. Equipment Co., Pittsburgh, Pa.
 Atlantic Equipment Co., The, New York, N. Y.
 Bailey-Libby Co., The, Charleston, S. C.
 Bender Iron & Supply Co., S. Shreveport, La.
 Birmingham Rail & Loco. Co., Birmingham, Ala.
 Carey Co., Thos. F., New York, N. Y.
 Cincinnati Frog & Switch Co., Cincinnati, Ohio.
 Fisher & Marks, Cleveland, Ohio.
 Foster Co., L. B., Pittsburgh, Pa.
 Georgia Car & Locomotive Co., Atlanta, Ga.
 Glavin Co., Herbert, New York, N. Y.
 Granville Co., Joseph D., St. Louis, Mo.
 Harris Bros. Co., Chicago, Ill.
 Hoffman & Co., Inc., B., Baltimore, Md.
 Houston Railway Co., Houston, Tex.
 Hyde & Company, Pittsburgh, Pa.
 Joseph Iron Co., The, Isaac, Cincinnati, Ohio.
 Kilby Frog & Switch Co., Birmingham, Ala.
 Kleinhaus Co., H., Pittsburgh, Pa.
 Light Railway Equipment Co., Philadelphia, Pa.
 Machinery & Supply Co., New York, N. C.
 Males Co., The, New York, N. Y.
 Marsh-Botke Mchry. Co., Chicago, Ill.
 Hartfield-Garbutt Machinery Co., Savannah, Ga.
 Metzger, Louis H., Mobile, Ala.
 Miller-Crippen Equip. Co., Inc., Syracuse, N. Y.
 Moore Bros. Co., Chicago, Ill.
 Morrison & Rismann, Buffalo, N. Y.
 National Steel Rail Co., St. Louis, Mo.
 Payne, Howard B., Pittsburgh, Pa.
 Peckham & Co., Fred. A., Cleveland, Ohio.
 Pittsburgh Mchry. & Equip. Co., Pittsburgh, Pa.
 Richmond Mill Supply Co., Richmond, Va.
 Robinson & Orr, Pittsburgh, Pa.
 Service Equipment Co., Philadelphia, Pa.
- Shaw, Willis, Chicago, Ill.**
 Sherwood, E. C., New York, N. Y.
 Southern Iron & Metal Co., Jacksonville, Fla.
 Torbett & Co., Chicago, Ill.
 United Amer. Iron & Steel Co., New York, N. Y.
 Weller Co., Inc., H. C., Jacksonville, Fla.
 Weir Frog Co., Cincinnati, Ohio.
 West Virginia Rail Co., Huntington, W. Va.
 Wilson & Co., E. H., Philadelphia, Pa.
 Wilson Macch. Co., St. Louis, Mo.
 Yampolsky, Geo., Clarksburg, W. Va.
 Zelnicke Supply Co., Walter A., St. Louis, Mo.
- RAILROAD CARS.** (Box, Flat, Coal,
 American Rwy. Equipment Co., Pittsburgh, Pa.
 Houston Railway Car Co., Houston, Tex.)
- RAILROAD FROGS AND SWITCHES.**
 American Frog & Switch Co., Hamilton, Ohio.
 Cincinnati Frog & Switch Co., Cincinnati, Ohio.
 Frank, M. K., Pittsburgh, Pa.
 Hyde & Company, Pittsburgh, Pa.
 Kilby Frog & Switch Co., Birmingham, Ala.
 Light Railway Equipment Co., Philadelphia, Pa.
 Morrison & Rismann, Buffalo, N. Y.
 Metzger, Louis H., Mobile, Ala.
 Morrison & Rismann, Buffalo, N. Y.
 Robinson & Orr, Pittsburgh, Pa.
 Weir Frog Co., Cincinnati, Ohio.
- RAILS.** (Steel.)
 Amer. Metallic Packing Co., Inc., Lexington, Ky.
 American Rwy. Equipment Co., Pittsburgh, Pa.
 Bender Iron & Supply Co., S. Shreveport, La.
 Birmingham Rail & Loco. Co., Birmingham, Ala.
 Carey Co., Thos. F., New York, N. Y.
 Carnegie Steel Co., Pittsburgh, Pa.
 Fisher & Marks, Cleveland, Ohio.
 Foster Co., L. B., Pittsburgh, Pa.
 Frank, M. K., Pittsburgh, Pa.
 Granville Co., Joseph D., St. Louis, Mo.
 Hoffman Co., Inc., R. C., Baltimore, Md.
 Hyde & Company, Pittsburgh, Pa.
 Iron Trading Corp., The, New York, N. Y.
 Lackawanna Steel Co., Lackawanna, N. Y.
 Lewis & Co., Henry, Philadelphia, Pa.
 Malsby Machinery Co., Jacksonville, Fla.
 Metzger, Louis H., Mobile, Ala.
 Morrison & Rismann, Buffalo, N. Y.
 National Steel Rail Co., St. Louis, Mo.
 Republic Iron & Steel Co., Youngstown, Ohio.
 Robinson & Orr, Pittsburgh, Pa.
 Sherwood, E. C., New York, N. Y.
 Sweet's Steel Co., Williamsport, Pa.
 Tennessee Coal, Iron & R. R. Co., Birm'ham, Ala.
 United Amer. Iron & Steel Co., New York, N. Y.
 West Virginia Rail Co., Huntington, W. Va.
 Wilson & Co., E. H., Philadelphia, Pa.
 Yampolsky, Geo., Clarksburg, W. Va.
 Zelnicke Supply Co., Walter A., St. Louis, Mo.
- RAILWAYS.** (Industrial.)
 Chase Foundry & Mfg. Co., Columbus, Ohio.
 Cincinnati Frog & Switch Co., Cincinnati, Ohio.
 Hunt Co., Inc., C. W., West New Brighton, N. Y.
- RAILWAY REPAIR SHOPS EQUIPMENT.**
 Niles-Bement-Pond Co., New York, N. Y.
- REAL ESTATE INVESTMENT.**
 Jemison Real Estate & Ins. Co., Birmingham, Ala.
- REFRIGERATING MACHINERY AND
 PARATUS.**
 Arctic Ice Machine Co., Canton, Ohio.
 Berryman's Refrigerating Mchry. Ex., Phila.
 Brecht Co., St. Louis, Mo.
 De La Vergne Mch. Co., New York, N. Y.
 Ottelheimer Bros., Baltimore, Md.
 Vilter Mfg. Co., New York, N. Y.
 Vogt Bros. Mfg. Co., Louisville, Ky.
 Vogt Mch. Co., Inc., Henry, Louisville, Ky.
- REINFORCING PLATES.** (Rendering Iron
 Beater & Hoist Co., Dayton, Ohio.)
- RINGS.** (Piston.)
 The Everlight Piston Ring Co., St. Louis, Mo.
- RIVER AND HARBOR IMPROVEMENT.**
 (Dredging, Docks, Wharves, etc.)
 Atlantic, Gulf and Pacific Co., New York, N. Y.
 Stimpson Co., Edwin B., New York, N. Y.
- RIVETS.** (Copper, Iron, Brass, Steel.)
 Stimpson Co., Edwin B., New York, N. Y.
- RIVETERS.** (Pneumatic.)
 Ingersoll-Rand Co., New York, N. Y.
- ROAD EXPANSION JOINTS.**
 Aspromet Company, Pittsburgh, Pa.
- ROAD AND STREET MACHINERY.**
 Austin-Western Road Mchry. Co., The, Chicago, Ill.
 Ball Engine Co. (Erie Steam Shovel Co.), Erie, Pa.
 Baker Mfg. Co., The, Springfield, Ill.
 Buffalo-Springfield Roller Co., Springfield, Ill.
 Bugles-Coles Engineering Co., York, Pa.
 The Automatic Shovel Co., Lorain, Ohio.
 Universal Road Mchry. Co., Kingston, N. Y.
 Western Wheeled Scraper Co., Aurora, Ill.
- ROAD GRADER AND SCRAPERS.**
 Austin-Western Road Mchry. Co., Chicago, Ill.
 Ball Engine Co. (Erie Steam Shovel Co.), Erie, Pa.
 Western Wheeled Scraper Co., Aurora, Ill.
- ROAD OILS AND PRESERVATIVES.**
 Barrett Co., New York, N. Y.
- ROAD GRADER AND SCRAPERS.**
 Austin-Western Road Mchry. Co., Chicago, Ill.
 Ball Engine Co. (Erie Steam Shovel Co.), Erie, Pa.
 Western Wheeled Scraper Co., Aurora, Ill.
- ROAD OILS AND PRESERVATIVES.**
 Barrett Co., Philadelphia, Pa.
- ROAD GRADER AND SCRAPERS.**
 Du Pont de Nemours & Co., E. I., Wilm'ton, Del.
 Gulf Refining Co., Pittsburgh, Pa.
 Erie Machine Shops, Erie, Pa.
 Standard Oil Co. of Louisiana, Baton Rouge, Texas Co., The, New York, N. Y.
 Warren Bros. Co., Boston, Mass.
- ROAD BINDERS.**
 Barrett Co., New York, N. Y.
- ROAD GRADER AND SCRAPERS.**
 Austin-Western Road Mchry. Co., Chicago, Ill.
 Ball Engine Co. (Erie Steam Shovel Co.), Erie, Pa.
 Western Wheeled Scraper Co., Aurora, Ill.
- ROAD OILS AND PRESERVATIVES.**
 Barrett Co., Philadelphia, Pa.
- ROAD GRADER AND SCRAPERS.**
 Du Pont de Nemours & Co., E. I., Wilm'ton, Del.
 Gulf Refining Co., Pittsburgh, Pa.
 Erie Machine Shops, Erie, Pa.
 Standard Oil Co. of Louisiana, Baton Rouge, Texas Co., The, New York, N. Y.
 Warren Bros. Co., Boston, Mass.
- ROAD OILING MACHINERY.**
 Kinney Mfg. Co., Boston, Mass.
- ROAD ROLLER.** (Steam.)
 Austin-Western Road Mchry. Co., Chicago, Ill.
 Buffalo Springfield Roller Co., Springfield, Ill.
 Erie Machine Shops, Erie, Pa.
 Universal Road Mchry. Co., Kingston, N. Y.
- ROAD SCARIFIERS.**
 Buffalo Springfield Roller Co., Springfield, Ill.
- ROAD SIGNS.**
 Union Iron Products Co., East Chicago, Ind.
- RODS.** (Welding.)
 Page Steel & Wire Co., New York, N. Y.
- ROOFING.**
CEMENT TILE.
 American Cement Tile Mfg. Co., Pittsburgh, Pa.
- READY PREPARED.** (Felt, Tar, Asbestos,
 phalt.)
 American Sheet & Tin Plate Co., Pittsburgh, Pa.
 Aspromet Company, Pittsburgh, Pa.
 Barrett Co., New York, N. Y.
 Johns-Manville Co., H. W., New York, N. Y.
- METAL SHINGLES.**
 Berger Mfg. Co., Canton, Ohio.
 Cortright Metal Roofing Co., Philadelphia, Pa.
 Hyndman Roofing Co., Cincinnati, Ohio.
 Milwaukee Corrugating Co., Milwaukee, Wis.
- SLATE.**
 Vendor Slate Co., Inc., Bangor, Pa.

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Des Moines Bridge & Iron Co., Des Moines, Iowa.
Dietrich Bros., Baltimore, Md.
Egan & Co., Inc., R. C., Baltimore, Md.
International Steel & Iron Co., Evansville, Ind.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Lackawanna Steel Co., Lackawanna, N. Y.
Memphis Steel Const. Co. of Pa., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Phoenix Iron Co., Philadelphia, Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Reilly Mfg. Co., J. J., Louisville, Ky.
Republic Iron & Steel Co., Youngstown, Ohio.
Richmond Structural Steel Co., Richmond, Va.
Roanoke Iron & Bridge Works, Roanoke, Va.
Standard Architectural Iron Works, Louisville, Ky.
Steel Products Co., The Savannah, Ga.
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.
Vincennes Bridge Co., Vincennes, Ind.
Virginia Bridge & Iron Co., Roanoke, Va.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.

SULPHUR.
Freeport Sulphur Co., Freeport, Texas.

SULFURIC ACID.
Davison Chemical Co., Baltimore, Md.
Du Pont de Nemours & Co., E. I., Wilm'ton, Del.

SUPER-HEATERS. (Steam.)
Babcock & Wilcox Co., New York, N. Y.
Power Specialty Co., New York, N. Y.

SURVEYING INSTRUMENTS.
Weber & Co., F., Philadelphia, Pa.

SWINGING ENGINES.
Duke Engine Co., Grand Haven, Mich.

SWITCHBOARDS, SWITCHES, ETC.
General Electric Co., Schenectady, N. Y.
West-house Elec. & Mfg. Co., East Pittsburgh, Pa.

SWITCHSTANDS.
Bethlehem Steel Co., South Bethlehem, Pa.
Weir Frog Co., Cincinnati, Ohio.

TACKLE BLOCKS. (For Wire or Manila Rope.)
Spreckel & Bascom Rope Co., St. Louis, Mo.
Topping Bros., New York, N. Y.

TALC PRODUCTS.
De Soto Talc Co., Chatsworth, Ga.
Harford Talc Co., Inc., The, Baltimore, Md.

TANKS.
CORRUGATED METAL K. D.
Tennessee Metal Culvert Co., Nashville, Tenn.
LEAD LINED.
Hauser-Stander Tank Co., The, Cincinnati, Ohio.

IRON AND STEEL.
American Bridge Co., New York, N. Y.
American Water Softener Co., Philadelphia, Pa.
Caldwell & Co., Inc., W. E., Louisville, Ky.
Casey-Hedden Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chat'n's, Tenn.
Chicago Bridge & Iron Works, Chicago, Ill.
Des Moines Bridge & Iron Co., Des Moines, Iowa
Hartley Boiler Works, Montgomery, Ala.
Hendrix Mfg. Works, Carbondale, Pa.
Lombard Iron Works, Augusta, Ga.
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.
Memphis Steel Const. Co. of Pa., Pittsburgh, Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Scaife & Sons Co., Wm. B., Pittsburgh, Pa.
Schmidt Iron Works, Chattanooga, Tenn.
Southern Roller & Tank Works, Memphis, Tenn.
Standard Tank Co., New York, N. Y.
Walsh-Wells Co., Warren, Pa.
Tennessee Metal Culvert Co., Nashville, Tenn.
Virginia Bridge & Iron Co., Roanoke, Va.
Westhouse Boiler Co., Chattanooga, Tenn.
Westinghouse Traction Brake Co., Wilmerding, Pa.

OH.
Standard Tank Co., New York, N. Y.

PACKING-HOSES.
Dayton Beater & Hoist Co., Dayton, Ohio.

PICKLING.
Hauser-Stander Tank Co., The, Cincinnati, Ohio.

WOOL.
Coldwell Oil, Inc., W. E., Louisville, Ky.
Hawth & Son, G. M., Palatka, Fla.
Hendrick & Co., The, Cincinnati, Ohio.
Pacific Tank & Pipe Co., San Francisco, Cal.

TAPES. (Measuring.)
Lufkin Rule Co., Saginaw, Mich.
Starrett Co., L. B., Athol, Mass.

TELEPHONES. (Supplies, Equipment.)
Piedmont Electric Co., Asheville, N. C.
Western Electric Co., New York, N. Y.

TELEPHONE SERVICE.
American Telephone & Telegraph Co.

TERRA-COTTA. (Ornamental.)
Atlanta Terra-Cotta Co., Atlanta, Ga.

THREADING AND TAPPING MACHINERY.
Webster & Perks Tool Co., The, Springfield, Ohio.

THRESHERS.
Cardwell Machine Co., Richmond, Va.

TIERING MACHINES. (Portable.)
Economy Engineering Co., Chicago, Ill.

TILE.
DRAIN.
Northern Steel & Iron Wks., Eau Claire, Wis.
Oceone Brick & Tile Co., Milledgeville, Ga.
FLOOR, WALL, MANTEL, ETC.
Amer. Enam. Brick & Tile Co., New York, N. Y.
Hood Brick Co., B. Miffin, Atlanta, Ga.
National Mosaic Tile Co., Inc., Mobile, Ala.

STRUCTURAL.
Oceone Brick & Tile Co., Milledgeville, Ga.

TILE SLABS.
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Newman Clock Co., New York, N. Y.

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Cardwell Machine Co., Richmond, Va.
Ripley Foundry & Machine Co., Ripley, Ohio.

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Independent Pneumatic Tool Co., Chicago, Ill.
Ingersoll-Rand Co., New York, N. Y.

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Steel and Wire Works.
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Chattanooga Boiler & Tank Co., Chat'n's, Tenn.
Chesapeake Iron Works, Baltimore, Md.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
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OVERHEAD.
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Yale & Towne Mfg. Co., New York, N. Y.

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Midvale Steel & Ordnance Co., Philadelphia, Pa.
National Tube Co., Pittsburgh, Pa.
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Glamorgan Pipe & Fdry. Co., Lynchburg, Va.
Layne & Bowler Co., Memphis, Tenn.
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- WELDING APPARATUS.** (Oxy-Acetylene Process.)
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- Gulf States Steel Co., Birmingham, Ala.
Page Steel & Wire Co., Adrian, Mich.
Youngstown Sheet & Tube Co., Youngstown, Pa.
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Page Steel & Wire Co., New York, N. Y.
- ELECTRICAL.**
Page Steel & Wire Co., New York, N. Y.
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Page Steel & Wire Co., New York, N. Y.
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- ZINC.**
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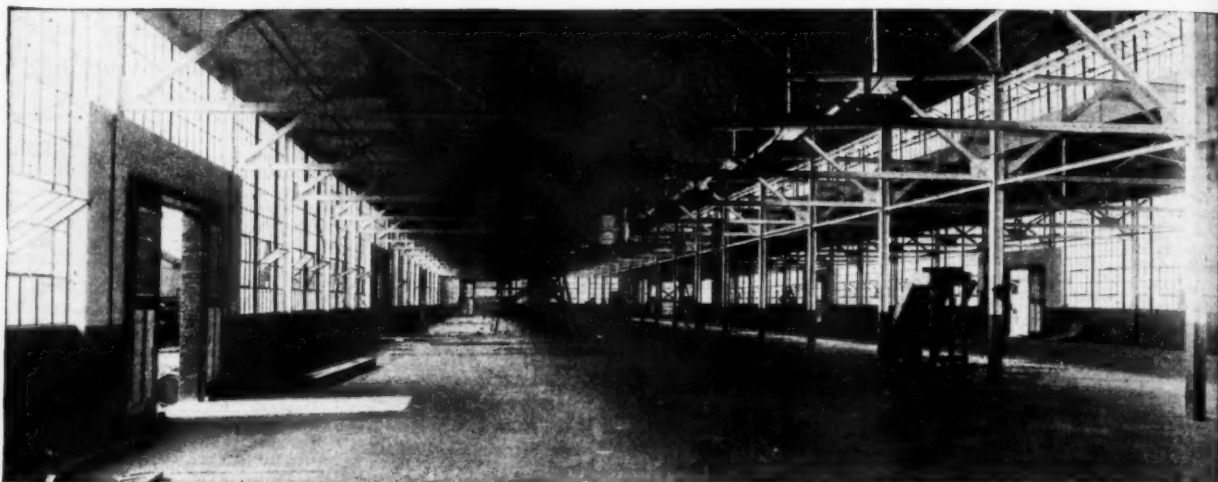
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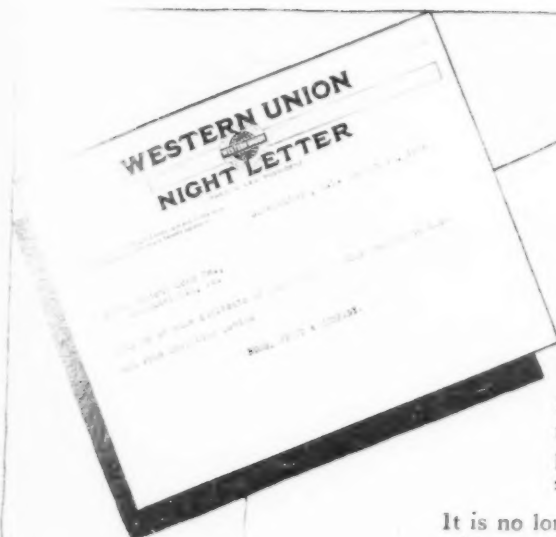
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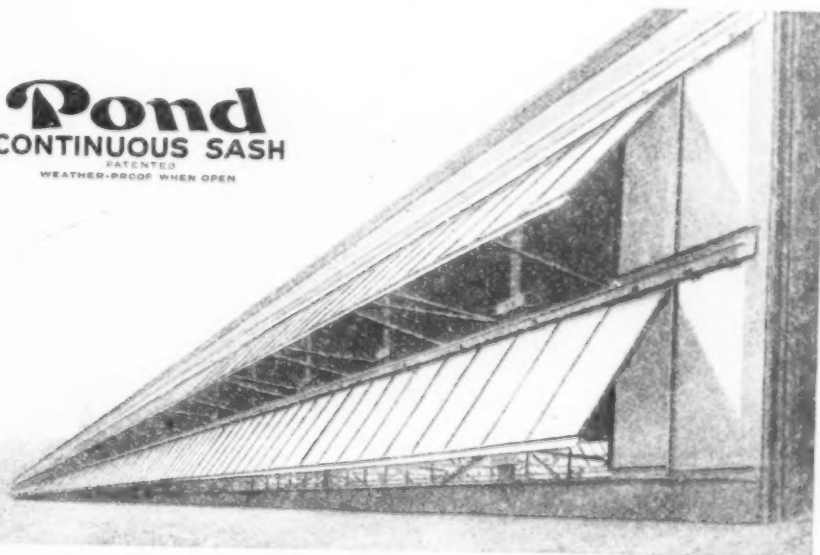
Malleable iron hinges are used, spaced four feet on centers, with bronze pins

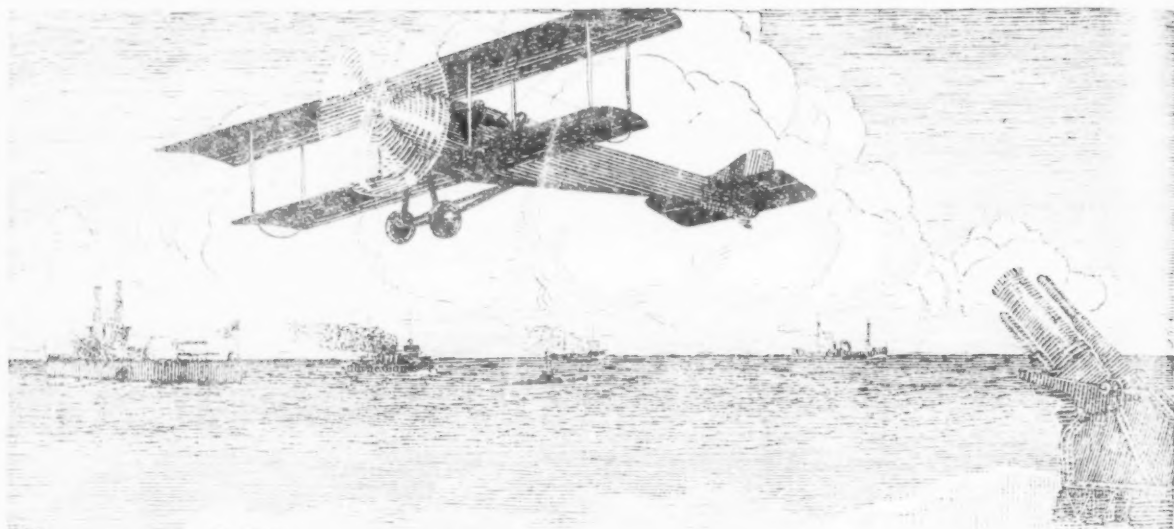


Patented sill member. Drip holes prevent pocketing water when sash is open. Opposite flanges take thrust of operator without strain on glass

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